



Vickery Environmental, Inc.
A Waste Management Company
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AIRBORNE EXPRESS

Airbill #3643926484

November 10, 2000

U.S. Environmental Protection Agency
Region V
Associate Division Director
Waste Management Division
Office of RCRA
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Facility Investigation (RFI)
Submittal of Statement of Position

Dear Associate Director:

Vickery Environmental, Inc. (VEI) submits the enclosed documents in accordance with the facility's Final Federal Permit, Permit Condition III.G., Dispute Resolution. VEI has elected to enter the dispute resolution process in hopes of resolving the issue regarding US EPA's required further investigation of RCRA Clean Closed Surface Impoundments 11 and 12. Included in this submittal is VEI's Statement of Position which identifies the specific matter in dispute, the position that VEI asserts should be adopted, the basis for VEI's position and the supporting documentation.

If you have any questions, please contact Ms. Sandy Clark at (419)547-3335.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly

Vickery Environmental, Inc.

US EPA

November 10, 2000

Page 2

responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

VICKERY ENVIRONMENTAL, INC.



Stephen C. Lonneman
General Manager

Enclosures

SCL/slc

cc w/: Mr. Thomas Matheson, USEPA (Same package)
Ms. Beth Ames, OEPA-NWDO

**Statement of Dispute Regarding the Investigation
of RCRA Clean Closed Surface Impoundments 11 and 12
Under the RCRA Corrective Action Program at
Vickery Environmental, Inc., Vickery, Ohio
Volume I of III**

November 10, 2000

Submitted to:

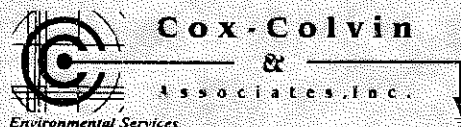
United States Environmental Protection Agency Region 5
Waste Management Branch
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Prepared for:

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Prepared by:

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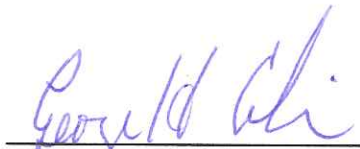
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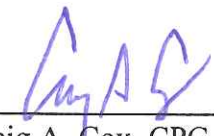
Prepared for:

Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

Prepared by:



George H. Colvin, CPG
Principal
Cox-Colvin & Associates, Inc.



Craig A. Cox, CPG
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I.0 Statement of Dispute

In accordance with Condition G.1 of the Vickery Environmental, Inc. (Vickery Environmental) Final Federal Permit issued by U.S. EPA, Vickery Environmental has elected to enter dispute resolution regarding U.S. EPA's required further investigation of RCRA Clean Closed Surface Impoundments 11 and 12. This Statement of Dispute was prepared by Cox-Colvin & Associates, Inc. on behalf of Vickery Environmental and represents the facility's position on this critical issue. This Statement of Dispute is being submitted within the 14 day time frame required by Condition G.1.

Vickery Environmental owns and operates a hazardous waste treatment, storage and disposal facility located in Vickery, Ohio. In October 1984, the Ohio EPA issued Vickery Environmental a Hazardous Waste Facility Installation and Operation Permit (Part B Permit). At the time of issuance, Ohio EPA lacked authority to administer the Corrective Action provisions of Section 3004(u), 42 U.S.C. §6924(u); therefore, Region V issued a separate Part B permit which set forth Corrective Action requirements, and Region V assumed responsibility for administration of this permit.

Region V has concluded that Vickery Environmental that it must investigate two areas where surface impoundments had been located as solid waste management units. Vickery Environmental clean-closed both of these impoundments, formerly referred to as Surface Impoundments 11 and 12, pursuant to the terms of separate Ohio EPA and Region V Consent Decrees. The Consent Decrees required extensive sampling of Surface Impoundments 11 and 12, as described later in this document, and closure of both ponds in accordance with applicable regulatory requirements and the approved Closure Plan.

Vickery Environmental Clean Closed Ponds 11 and 12 in full compliance with applicable rules for Clean Closure, i.e., excavation of all contaminated materials. Through excavation of all contaminated material the potential risk to human health and the environment was removed. Region V and Ohio EPA participated in the review of all aspects of these closures, including review and approval of the Closure Plan, review of sampling data, and review of the certification of closure in 1993.

Despite Vickery Environmental's completion of clean-closure of Ponds 11 and 12 and regulatory acceptance of these closures, Region V now desires to re-investigate these areas through use of its Correction Action program.

U.S. EPA's attempt to further investigate these two areas that were clean-closed is contrary to applicable regulations and guidance issued by U.S. EPA. Moreover, Region V's attempt to require re-investigation of areas that have been sampled extensively as part of clean-closure contradicts U.S. EPA headquarters' goal of coordinating closure and Corrective Action as to eliminate duplication of effort (including oversight) and avoid second-guessing of remedial decisions.

The sections that follows briefly describe the Vickery Environmental facility and provide overviews of the operations and closure of the Surface Impoundments and related RCRA Corrective Action activities. The final part presents Vickery Environmental's arguments why Region V's attempt to investigate the Clean Closed units contradicts guidance and policy issued by U.S. EPA Headquarters and also contradicts the opinion of Ohio EPA on this issue. This Statement of Dispute relies primarily on U.S. EPA guidance and policy and what we believe to be a practical and holistic understanding of the issues. In addition, Vickery Environmental has requested a legal analysis of whether Region V may use its authority under Section 3004(u) of RCRA to require Corrective Action at RCRA Clean Closed units. This legal analysis is included as Attachment F.

2.0 Site Description

The Vickery Environmental facility is located in a rural, unincorporated area of Sandusky County in the north-central part of Ohio (Figure 1-1). The facility's active area encompasses approximately 98 acres and is bounded by highways to the south, east, and north, and by vacant land to the west. The unincorporated community of Vickery lies two miles northeast of the site, and the cities of Clyde and Fremont are located approximately four miles south and six miles west, respectively.

The facility is permitted under RCRA to accept and dispose of liquid waste via underground injection. Originally an oil recovery service, the facility later accepted various industrial wastes and stored them in surface impoundments. In 1964, the facility was permitted to accept chemical process waste. In 1972, a test hole was drilled to evaluate underground injection as a disposal option. Eventually, seven injection wells were permitted and drilled to depths as great as 2,800 ft below ground surface (bls). This method of disposal gradually supplanted the use of impoundments and landfarming. Three of these wells have been abandoned and plugged. Four injection wells are currently active, disposing of a variety of liquid waste such as pickle liquors, acid and caustic wastes, and other aqueous wastes including landfill leachate. By 1992, the 12 former surface impoundments were closed. Wastes generated by closure of the impoundments were either stabilized and fixed in place or relocated to a secure landfill known as the Toxic Substances Control Act (TSCA) closure cell.

Unconsolidated materials beneath the site consist of 40 to 50 ft of lacustrine and glacial till units. The hydraulic conductivity of these units is very low ranging from 10^{-7} to 10^{-9} cm/sec. The low hydraulic conductivity of the unconsolidated material results in very poorly drained soils. Prior to settlement of the area, much of Sandusky County consisted of lowland swamps and wetland areas known as the Black Swamp. Underlying the low permeability lacustrine and till deposits, bedrock of the Salina Group is encountered. Detailed rock-core logs collected from the site indicate the bedrock beneath the site is a mixture of dolomite, shale, gypsum, and anhydrite.

Groundwater within the bedrock aquifer flows to the north and northeast where it discharges into Lake Erie, approximately 10 miles from the facility. Hydraulic conductivity of the bedrock aquifer at the site ranges from 5.5×10^{-3} to 2.0×10^{-4} cm/sec. The presence of gypsum and anhydrite in bedrock result in elevated levels of naturally occurring water quality parameters such as hardness, total dissolved solids, chloride, sulfate, iron, and hydrogen sulfide. In this portion of Sandusky County, the naturally

occurring levels of these parameters are often well above secondary drinking water standards. Because of the poor natural quality of groundwater, very few people in Sandusky County have wells for potable water. Instead, they use cisterns to hold water trucked in from above-ground reservoirs located in Fremont and Clyde. Groundwater in the bedrock aquifer has been monitored for over 14 years. Monitoring data indicates that groundwater within the bedrock aquifer has not been impacted from activities at the facility. Water of limited quantity is also present in the low permeability glacial deposits; however, based on their fine grained nature, these deposits are not capable of supplying sufficient water to meet even the strictest definition of an aquifer. Following evacuation of monitor wells completed in the unconsolidated deposits, most of the wells require many days to recover. With few exceptions, water collected from wells within the unconsolidated deposits have not been impacted by waste management activities.

3.0 Operation and Clean Closure of Surface Impoundments 11 and 12

Former Surface Impoundments 11 and 12 are located in the west-central portion of the facility (Figure 1-2). Both surface impoundments were used to store treated aqueous waste. After storage and treatment in these ponds, liquid wastes were filtered and deep well injected. Detailed information on the operation and Clean Closure of the surface impoundments is provided in the 1995 *Report on Description of Current Conditions* (Rust Environment & Infrastructure, 1995).

Two consent decrees have address the Clean Closure of Surface Impoundments 11 and 12. Closure was required by Paragraph 28(B)(1) of the May 1984 Consent Decree entered between the State of Ohio and Chemical Waste Management (CWM), and Paragraph I of the April 1985 Consent Order and Final Order (CAFO) entered between U.S. EPA and CWM. Both Consent Decrees are provided in Appendix A.

In evaluating closure options during negotiations of the consent decrees, CWM, the facility's previous owner, chose to close Ponds 11 and 12 by removing all hazardous waste and waste residues through "Clean Closure" as provided them in 40 CFR 265.228. The other option of closing the unit with "waste in place" (e.g., Landfill Closure) would have required lengthy and resource intensive post-closure care, monitoring, and permitting requirements. Clean Closure also provides the flexibility to utilize the clean closed area for any purpose, without restriction. According to a March 1998 U.S. EPA memorandum (U.S. EPA, 1998), the restrictive Clean Closures, like that performed at Ponds 11 and 12, were done in such a way that "...further regulatory control under RCRA Subtitle C is not necessary to protect human health and the environment." The March 1998 memo is attached as Appendix B.

A Closure Plan for Ponds 11 and 12 was developed and submitted to Ohio EPA for review in July 1985 (CWM, 1985). Working closely with both Ohio EPA and U.S. EPA, the plan was approved, with modifications, on March 31, 1988 (Ohio EPA, 1988). The Closure Plan and Closure Plan approval letter are provided as part of the Certification Report for Ponds 11 and 12 in Appendix C. Among other conditions, the Closure Plan approval letter stated that closure could not proceed until the plan was also approved by U.S. EPA.

In 1991, clean closure of the ponds began. The surface impoundments were closed by the excavation and fixation of sludges which were placed in the newly constructed TSCA

Closure Cell. Upon removal of waste, all waste residue plus at least six inches of clay soil from the interior surfaces of Ponds 11 and 12 were removed and disposed of in the TSCA Closure Cell until no visual evidence of discoloration of soils remained. To confirm the removal of waste residue and contaminated soil, extensive soil sampling and analysis was conducted. Additional excavation and sampling was then conducted as needed until the Clean Closure standard of non-detect for organics and background for inorganics was achieved.

Soil sampling constituents were selected in accordance with Federal and State Consent Decrees and the Closure Plan. The closure sampling constituent list was adopted based on sampling and analysis of aqueous waste in Surface Impoundments 11 and 12 for an expanded hazardous constituents list, research of potential waste stream constituents, and discussion and approval by Ohio EPA and U.S. EPA. Soil samples were analyzed for 30 organics comprising the F001 through F004 waste constituents, the RCRA metals including arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver, 11 phenolic compounds, seven PCB compounds, and cyanide. A listing of the individual compounds is provided in Table 1. Post-excavation sampling resulted in the collection and analysis of approximately 90 grab samples. Soil sampling analytical results, including sample preservation and shipping methods, are provided in Appendix D.

In December 1992, a Closure Certification for Ponds 11 and 12 (Bowser Morner, 1992) was submitted to Ohio EPA. The Closure Certification is provided in Appendix C. In September 1993, under the authority granted by U.S. EPA, Ohio EPA approved the "Clean Closure" of the ponds in accordance with the approved Closure Plans and in accordance with Rules 3745-66-12 through 3745-66-15 of the Ohio Administrative Code (OAC)¹. In addition, because of the "Full Clean Closure of Ponds 11 and 12", Ohio EPA (1993) concluded that the facility was no longer subject to post-closure care and the financial assurance requirements of OAC 3745-66-43. The Ohio EPA closure approval letter for Ponds 11 and 12 is provided in Appendix C.

As noted in the Closure Plans and in the Consent Agreements, quarterly monitoring was required from lacustrine and bedrock wells surrounding the closed ponds for a period of three years. On April 30, 1996, following the review of the groundwater monitoring data, Ohio EPA provided the facility with a letter stating that the analytical results for groundwater verified that the units are considered Clean Closed. The Ohio EPA letter,

¹OAC 3745-66-12 through 3745-66-15 mimic the federal regulations (40 CFR 265.112 through 265.115).

provided in Appendix C, also recommends that the wells surrounding the ponds be abandoned.

Throughout the clean closure process (1984 to 1996), the owner/operator worked closely with personnel from Ohio EPA and U.S. EPA to ensure the successful completion of the project. At no point in the process did U.S. EPA suggest additional analysis for an expanded constituent list or that future investigation under the RCRA Corrective Action program might be required based on the constituent list. With the approval of "Full Clean Closure" by Ohio EPA (as authorized by U.S. EPA), responsibility for the unit is terminated (U.S. EPA, 1987a) and further regulatory control under RCRA Subtitle C is not necessary to protect human health and the environment (U.S. EPA, 1998).

4.0 Corrective Action History

In 1990, prior to Clean Closure of Surface Impoundments 11 and 12, Jacobs Engineering Group (Jacobs) was contracted by U.S. EPA, through Metcalf & Eddy, to perform a RCRA Facility Assessment (RFA) at the facility. As part of this RFA, Jacobs conducted a Visual Site Inspection (VSI) to verify and identify SWMUs that were identified during a Preliminary Review (PR). Using information available at the time of the inspection (pre-closure), Surface Impoundments 11 and 12 were included as SWMUs# 10 and 11, respectively in the resulting PR/VSI Report (Metcalf and Eddy, 1991). This was because the Surface Impoundments had not yet been closed.

Corrective Action conditions, including implementation of a RCRA Facility Investigation (RFI) were placed in the Federal Part B Permit issued to CWM-Vickery dated October 24, 1994. As a precursor to drafting an RFI Workplan, a Description of Current Conditions Report was required. The Description of Current Conditions Report was initially submitted to U.S. EPA in December 1994, with the final report submitted in September 1995 (Rust Environment & Infrastructure, 1995). An RFI Workplan including a Data Management Plan, a Project Management Plan, a Public Involvement Plan, a Health and Safety Plan, and a Quality Assurance Plan were initially submitted in April 1995 with the final approved version dated October 1998.

The RFI Workplan grouped Surface Impoundments 11 and 12 with four other RCRA Clean Closed land-based units and the TSCA Closure Cell to form SWMU Group B. These SWMUs were grouped together due to their clean-closed status and proximity to the TSCA Closure Cell. The Phase I RFI scope of work for SWMU Group B included collection of a water sample from the capillary drain that underlies the TSCA Closure Cell and the submittal of closure data collected for the Clean Closed units. Clean closure soil sampling results were submitted as Appendix G of the Phase I RFI Report (EarthTech, 1999). Additional clean closure verification soil sampling results specific to Surface Impoundments 11 and 12 are provided in Appendix D of this document.

In U.S. EPA's January 28, 2000 comments to the Phase I RFI Report, U.S. EPA stated, in General Comment 8, that the Clean Closure data provided in Appendix G was incomplete and in general lacks quality control sample and data validation results and documentation of sample preservation and transport methods. Based on these deficiencies, U.S. EPA concluded that the Clean Closure data provided in Appendix G of the Phase I RFI Report is not acceptable for use in the RFI. Clean Closure activities and reporting were conducted in accordance with the agency approved Closure Plan and U.S. EPA and Ohio EPA

Consent Agreements. With U.S. EPA's, January 28, 2000 conclusion that the closure data would not be acceptable for use in the RFI, the facility requested a meeting with U.S. EPA and Ohio EPA to discuss this and other issues associated with RFI Report comments.

During the resulting February 25, 2000 meeting, the need to implement RCRA Corrective Action at Clean Closed units was discussed at length. The facility argued that the RCRA Clean Closed units should have been screened out of the RFI due to the fact that they had been remediated to the highest possible standards (non-detect) under a program more stringent than the RCRA Corrective Action program. The turning point in the discussion occurred when Ohio EPA was questioned regarding the disincentive U.S. EPA's position would create for owner/operators considering Clean Closure to non-detect over risk-based or Landfill closure. At that point, Ohio EPA Division of Hazardous Waste personnel agreed, via telephone conference call, with Vickery's position indicating that once a unit is Clean Closed, it should not be subject to further investigation under RCRA. Ohio EPA is planning on assuming authority of the RCRA Corrective Action program at the facility upon journalization of the Ohio EPA Part B Permit Renewal. Journalization of the Ohio Permit is expected in the near future. The facility's March 23, 2000 response to U.S. EPA comments dated January 28, 2000 reflected this understanding as expressed by Ohio EPA. In response to General Comment No. 8, the facility stated the following:

"As discussed during the February 25th meeting, SWMUs which have been clean closed under RCRA will not be further investigated during the RFI. Data collected during Phase I which pertains to the RCRA clean closed units will remain in the revised Report. The revised Report will, however, conclude that further action is not necessary for these units, based on the above agreement. Historical closure information will remain "as is" in Appendix G."

In a July 12 letter to Vickery, U.S. EPA appears to have reversed their agreement made in the February meeting. Excerpts from U.S. EPA/Vickery comment/response packages pertaining to the Clean Closure issue are provided in Appendix E. In the July 12 document, U.S. EPA states in General Comment No. 1 that the data collected during closure does not meet RFI data needs and that additional soil sampling at Surface Impoundments 11 and 12 is required during Phase II of the RFI. Vickery provided a written response to this comment and other comments in an August 29, 2000 comment/response package. Vickery's response included much of the same information and positions expressed in this Statement of Dispute. Most recently, U.S. EPA provided comments on the August 29, 2000 response in an October 25, 2000 letter. This letter concludes that the Clean Closure-

related responses are inadequate and additional sampling is required. The basis of this position is that U.S. EPA believes that closure sampling was not conducted for a comprehensive list of hazardous constituents. Based on the October 25, 2000 U.S. EPA letter, Vickery Environmental elected to enter dispute resolution as set forth in this document.

5.0 Statement of Position

In 1991, Vickery Environmental Clean Closed Surface Impoundments 11 and 12 in full compliance with applicable rules for Clean Closure (ie., removal of all contaminated materials to below detection and background in the case of inorganics) and the requirements of State and Federal Consent Decrees. Region V and Ohio EPA participated in the review of all aspects of these closures, including the development of the constituent list for analysis, review and approval of the Closure Plan, review of analytical data, and review of the Certification of Closure in 1993. Despite Vickery Environmental's completion of Clean Closure of Surface Impoundments 11 and 12 and regulatory acceptance of Clean Closure, Region V now desires to re-investigate these areas through use of its Corrective Action program. Vickery Environmental believes, as discussed below, U.S. EPA's attempt to further investigate the Clean Closed Surface Impoundments is contrary to applicable regulations, guidance, and program philosophy.

The premise of Clean Closure, as stated in the March 16, 1998 Risk-Based Closure Memorandum (U.S. EPA, 1998) is that

"... all hazardous wastes have been removed from a given RCRA regulated unit and any releases at or from the unit have been remediated so that further regulatory control under RCRA Subtitle C is not necessary to protect human health and the environment."

Meeting the expectations of this premise requires the following:

1. all hazardous waste have been removed;
2. any releases have been remediated; and
3. further regulatory control is not necessary to protect human health and the environment.

The Clean Closure of Surface Impoundments 11 and 12 have met and exceeded these requirements. All hazardous waste and hazardous waste constituents were removed to below detection or background, in the case of organics. Identification of hazardous constituents was conducted in accordance with the Federal and State Consent Orders, the Closure Plan, and applicable regulations. The Clean Closure sampling constituent list was

adopted and approved based on sampling and analysis of aqueous waste in Surface Impoundments 11 and 12 for an expanded hazardous constituents list. Remediation of potential releases was confirmed by post-excavation sampling and three years of groundwater monitoring. Protection of human health and the environment is assured through the removal of hazardous waste and hazardous waste constituents to non-detect and background, in the case of inorganics.

Releases to the environment are also a fundamental component of the RCRA Corrective Action program. RCRA §3004(u) states the following:

"... a permit issued after November 8, 1984... shall require corrective action for all releases of hazardous waste or constituents from any solid waste management unit at any treatment, storage, or disposal facility..."

Based on the demonstration that any possible releases from the Surface Impoundments have been remediated, RCRA Corrective Action should not be required at Surface Impoundments 11 and 12. Simply stated: without a release, Corrective Action is not required. This Statement of Dispute is not suggesting that RCRA Correction is not required at the facility. Other SWMUs have been identified at the facility which have not been clean closed and which are proceeding through the process.

In determining if a release has occurred under the RCRA Corrective Action program, an owner/operator is required to sample for hazardous waste constituents. This issue seems to be the key point in U.S. EPA's requirement of further investigation under the RCRA Corrective Action program. As discussed above, soil and groundwater were sampled for a list of hazardous constituents developed based on sampling and analysis of aqueous waste in Surface Impoundments 11 and 12 for an expanded hazardous constituents list. This process of developing a site- or SWMU-specific list of hazardous constituents for sampling and analysis is similar to that which is commonly conducted under the RCRA Corrective Action program.

Termination of RCRA Subtitle C requirements through Clean Closure is well supported in the previously discussed regulations (U.S. EPA, 1987a) and in the guidance (U.S. EPA, 1998). Additional support of this position is provided in the U.S. EPA (1987b) *Surface Impoundment Clean Closure Guidance Manual*. This manual strongly suggests that an owner/operator's responsibility for a unit is terminated once it is Clean Closed:

"Upon successful completion of clean closure, no post-closure controls (fencing, capping, deed restrictions, etc), inspection, maintenance or monitoring is required; the land may be developed or transferred with no restrictions because of prior hazardous waste management activities."

If property which has been Clean Closed can be developed or transferred without restriction, it follows that owners are released of their responsibility under all provisions of RCRA for that property. This would include the former surface impoundments that were removed from the property. Legal analysis, provided by Vorys, Sater, Seymour and Pease LLP, which includes statutory, case law, and regulatory support of Vickery's position is provided in Appendix F.

On a philosophical level, there is considerable guidance emphasizing coordination between similar remedial programs. Coordination between RCRA Closure and RCRA Corrective Action programs is discussed at length in the September 24, 1996 U.S. EPA Memorandum from Steven Herman and Elliot Laws to RCRA/CERCLA National Policy Managers entitled *Coordination between RCRA Corrective Action and Closure and CERCLA Site Activities* (U.S. EPA, 1996). In this document, EPA states the following regarding acceptance of decisions made by other remedial programs:

"We encourage program implementors to focus on whether the end results of the remedial activities are substantially similar when making deferral decisions and to make every effort to resolve differences in professional judgement to avoid imposing two regulatory programs."

Regarding coordination between programs, this guidance states the following:

"The goal of any approach to coordination of remedial requirements should be to avoid duplication of effort (including oversight) and second guessing of remedial decisions. We encourage you to be creative and focus on the most efficient path to the desired environmental result as you craft strategies for coordination of cleanup requirements under RCRA and CERCLA and between federal and state/tribal cleanup programs."

U.S. EPA's current position also seems to contradict both the Advanced Notice of Public Rulemaking for Corrective Action and the Recent RCRA Reforms which encourage practical approaches and the importance of environmental results over process.

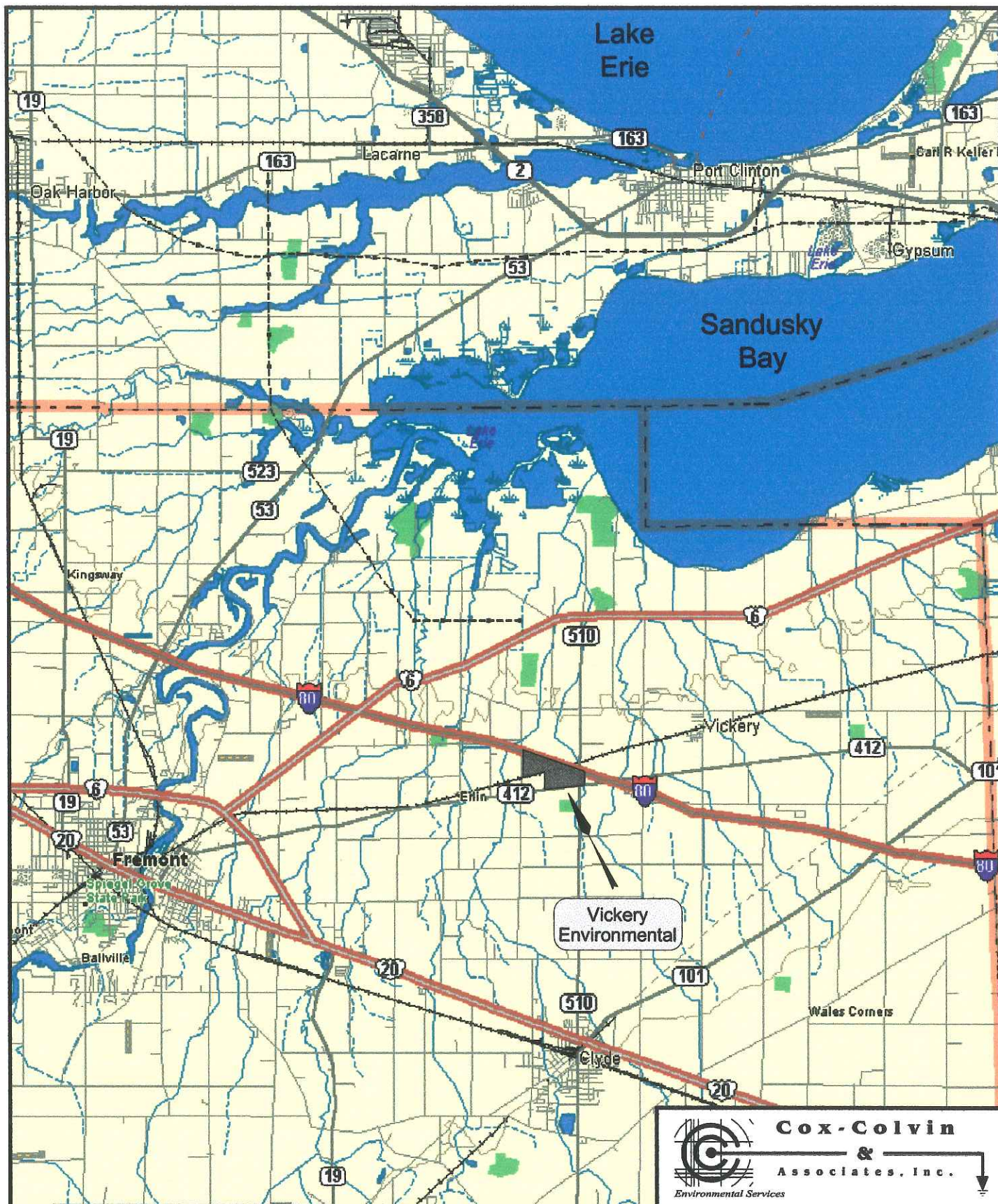
6.0 References

- Bowser Morner, 1992, Closure Certification Ponds 11 and 12, Chemical Waste Management, December 3, 1992.
- Cox-Colvin & Associates, 2000, Technical Position Paper on the Occurrence, Movement, and Quality of Groundwater at Waste Management of Ohio, Inc - Vickery, Facility, March 23, 2000.
- Chemical Waste Management, 1985, Closure Plan for Ponds 11 and 12, Vickery, Ohio Facility, July 3, 1985.
- Earth Tech, Inc, 1999, RCRA Facility Investigation (RFI) Phase I Report, October 1999.
- Ohio EPA, 1988, Closure Plan Approval Letter from Richard Shank to Fred Nicar, March 31, 1988.
- Ohio EPA, 1993, Notification Letter from Ohio EPA to Chemical Waste Management of the Approval of the Closure of Ponds 11 and 12. Date September 3, 1993.
- Metcalf & Eddy, 1991, Draft Preliminary Review/Visual Site Inspection Report, March 1991.
- Rust Environment & Infrastructure, 1995, Report on Current Conditions RCRA Facility Investigation, Chemical Waste Management, Vickery, Ohio, September 1995.
- U.S. EPA, 1987a, 40 CRF Part 265 Interim Status Standards for Owners and Operators of Hazardous Waste, Treatment, Storage, and Disposal Facilities; Final Rule, 52 FR 8704, March 19, 1987.
- U.S. EPA, 1987b, Surface Impoundment Clean Closure Guidance Manual, Prepared by CH2M Hill for U.S. EPA Office of Solid Waste, October 12, 1987.
- U.S. EPA, 1998, Memorandum from Elizabeth Cotsworth (Acting Director, Office of Solid Waste) to RCRA Senior Policy Advisors regarding Risk-Based Clean Closure, March 16, 1998.

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Figures

- 1.1 Site Location Plan, Vickery Environmental, Inc., Vickery, Ohio.
- 1.2 Location of Clean Closed Surface Impoundments 11 (SWMU #10) and 12 (SWM #11), Vickery Environmental, Inc., Vickery, Ohio.



Cox-Colvin
&
Associates, Inc.

Environmental Services

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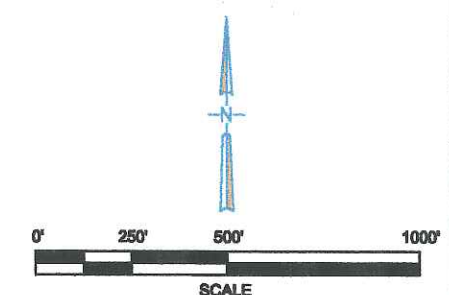
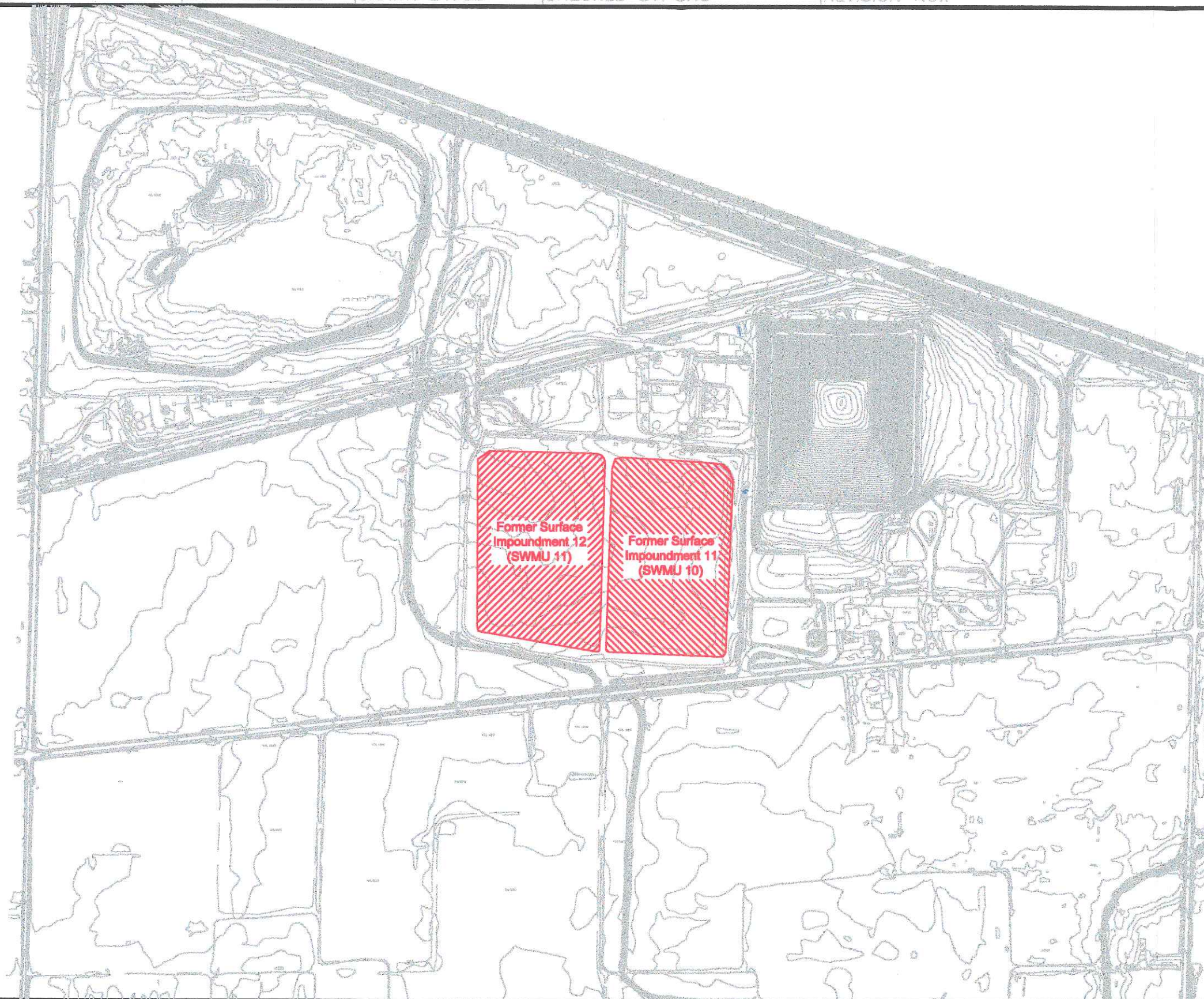
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Source: 7.5 Minute Series Quadrangle
 Clyde, Vicky, Wightmans Grove, and Fremont East, Ohio



Figure 1-1

Site Location Plan,
 Vicky Environmental, Inc.,
 Vicky, Ohio



Location of Clean Closed Surface Impoundments 11 (SWMU #10) and 12 (SWMU #11)

Tables

- 1 Hazardous Waste and Hazardous Waste Constituents Analyzed During RCRA Clean Closure Verification Soil Sampling of Surface Impoundments 11 and 12, Vickery Environmental, Inc., Vickery, Ohio.

Table 1. Hazardous Waste and Hazardous Waste Constituents* Analyzed During RCRA Clean Closure Verification Soil Sampling of Surface Impoundments 11 and 12, Vickery Environmental Inc., Vickery, Ohio.

F001 - F004, U044, U080, U211	PHENOLS	PCBs	004 - D0011, F006, F007, F008, F009, K062, U1
Acetone	2-Chlorophenol	Aroclor 1016	Arsenic, Total
Carbon Disulfide	2,4-Dichlorophenol	Aroclor 1221	Barium, Total
Benzene	2,4-Dimethylphenol	Aroclor 1242	Cadmium, Total
2-Butanone (MEK)	2,4-Dinitro-o-Cresol	Aroclor 1248	Chromium, Total
4-Methyl-2-Pentanone	2,4-Dinitrophenol	Aroclor 1254	Cyanide, Total
2-Hexanone	2-Nitrophenol	Aroclor 1260	Lead, Total
Carbon Tetrachloride	4-Nitrophenol		Mercury, Total
Chlorobenzene	4-Chloro-3-methylphenol		Selenium, Total
Chloroform	Pentachlorophenol		Silver, Total
Isobutanol	Phenols		
Total Xylenes	2,4,6-Trichlorophenol		
Dichlorodifluoromethane			
Ethyl Benzene			
Methylene Chloride			
Tetrachloroethene			
Toluene			
1,1,1-Trichloroethane			
1,1,2-Trichloroethane			
Trichloroethene			
Trichlorofluoromethane			
1,1,2-Trichloro-1,2,2-trifluoroethane			
o-Dichlorobenzene			
Ethyl Acetate			
Ethyl Ether			
n-Butyl Alcohol			
Cyclohexanone			
Methanol			
Pyridine			
2-Ethoxyethanol			
2-Nitropropane			

* Hazardous constituent list based on sampling and analysis of aqueous waste in Surface Impoundments 11 and 12 for an expanded constituent list, research of potential waste streams, and discussion with, and approval by U.S. EPA and Ohio EPA.

**Statement of Dispute Regarding the Investigation of
RCRA Clean Closed Surface Impoundments 11 and 12
Under the RCRA Corrective Action Program at
Vickery Environmental, Inc., Vickery, Ohio
Volume II of III**

November 10, 2000

Submitted to:

United States Environmental Protection Agency Region 5
Waste Management Branch
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Prepared for:

Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

Prepared by:

Cox-Colvin & Associates, Inc.
1679 Old Henderson Road
Columbus, Ohio 43220
(614) 442-1970



Appendix A

Ohio EPA and U.S. EPA Consent Orders

Postmark
Fax Note
Date 7-10-97
of pages 4
To BOB STYDUHAR
74-464-6350
From PAT
Phone 419-334-6169

SANDUSKY COUNTY
COURT OF COMMON PLEAS

97 JUL -8 PM 2:30

CLERK

IN THE COURT OF COMMON PLEAS
SANDUSKY COUNTY, OHIO

STATE OF OHIO, EX REL. ANTHONY J.
CELEBREZZE, JR. ATTORNEY GENERAL
OF OHIO,

Plaintiff,

v.

WASTE MANAGEMENT, INC. and
CHEMICAL WASTE MANAGEMENT, INC.,

Defendants.

Case No. 84-CV-384

Judge Harry A. Sargeant, Jr.

ORDER TERMINATING CONSENT DECREE

Defendants, Waste Management, Inc. and Chemical Waste Management, Inc. (hereafter "Defendants"), pursuant to Rules 7(B) and 60(B)(4) and (5) of the Ohio Rules of Civil Procedure, filed a motion requesting vacation of the Consent Decree agreed to by the parties to this matter and signed by this Court on May 22, 1984 ("Consent Decree").

Defendants have submitted several documents to this Court in support of their motion. First, Defendants have provided an affidavit from Mr. Fred Nicar, General Manager of the waste disposal facility located in Vickery, Ohio that is the subject of the Consent Decree. In his affidavit, Mr. Nicar states that he has been General Manager of the facility for 10 years and that one of his primary responsibilities has been to assure compliance with the Consent Decree. He further states that Defendants have met all of

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Vol. 213 Pg. 280-283

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their obligations for corrective action and payment of monetary penalties set forth in the Consent Decree. Mr. Nicar's affidavit also describes two provisions of the Consent Decree that have imposed continuing compliance obligations upon Defendants. These obligations appear in Section XVIII and XIX of the Consent Decree. The first obligation is that Defendants obtain the Ohio EPA's approval in advance of accepting a waste material that was not previously accepted at the Vickery facility. The second obligation was that Defendant Chemical Waste Management, Inc. facilitate meetings of the Public Information Committee, which is made up of state and local governmental officials and interested private citizens who periodically meet to discuss matters pertaining to the Vickery facility. Representatives of Defendant Chemical Waste Management, Inc. are present at such meetings.

With respect to the waste pre-approval obligation, the Ohio EPA, through its legal counsel, has supplied to the Court a copy of Defendant Chemical Waste Management's hazardous waste permit, which was recently renewed. The Ohio EPA added a condition to the renewal permit requiring that Defendant Chemical Waste Management obtain the Ohio EPA's approval in advance of acceptance of a new waste material. This permit term was taken directly from Section XVIII of the Consent Decree. Failure to abide by terms of a renewal permit exposes the permit holder to an enforcement action and civil penalties of up to \$10,000 per day of violation. Ohio Revised Code § 3734.13(B).

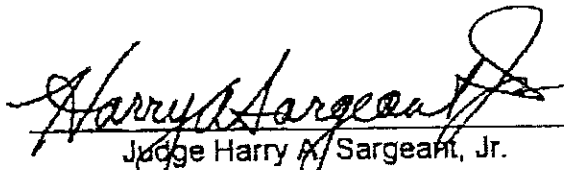
With respect to the Defendants' obligation to facilitate meetings of the Public Information Committee, Defendant Chemical Waste Management has entered into a contractual arrangement with the Sandusky County Health Department and the

Director of the Ohio Environmental Protection Agency in anticipation of termination of the Consent Decree. A copy of this contract is attached to this Order. This contract has also been accepted and agreed to by the existing Public Information Committee. The contract obligates Defendant Chemical Waste Management to continue to facilitate meetings of the Public Information Committee in the same manner as previously required by the terms of Section XIX of the Consent Decree.

In advance of filing of this Motion with this Court, Defendants discussed the terms of the Motion to Vacate with representatives of the Ohio EPA and the Office of the Attorney General, Environmental Enforcement Section. They have no objection to termination (rather than vacating) of the Consent Decree, based upon the facts as recounted above. Plaintiff State of Ohio's counsel has added its signature below, indicating its approval of issuance of this Order that would terminate the Consent Decree.


For the reasons set forth in this Order, Defendants' Motion to Vacate and the attachments thereto, filed pursuant to Rules 7(B) and 60(B)(4) and (5) of the Ohio Rules of Civil Procedure, and in accordance with the Plaintiff State of Ohio's signature of approval set forth below, the Defendant's Motion is granted and the Consent Decree is terminated.

Date:

July 7, 1997
Judge Harry A. Sargeant, Jr.

Plaintiff, State of Ohio, by its legal counsel, hereby states that it has no objection to granting Defendants' Motion to Vacate, which Defendants filed with this Court on January 27, 1997, through an Order issued by the Court terminating (rather than vacating) the Consent Decree. Prior to filing of its Motion to Vacate, Defendants

discussed the terms of the Motion to Vacate with representatives of the Ohio EPA and the Office of the Attorney General, Environmental Enforcement Section. Neither the Attorney General's office, Environmental Enforcement Section nor the Ohio EPA has an objection to termination of the Consent Decree.


Bryan F. Zima, Esq.,
Assistant Attorney General

Office of the Attorney General
Environmental Enforcement Section
30 East Broad Street, 25th Floor
Columbus, OH 43215-3428
Counsel for Plaintiff, State of Ohio

copies to:

Bryan F. Zima, Esq.
Lori A. Massey, Esq.
Robert J. Styduhar, Esq.

06/06/97 - 0182225.01

TO THE CLERK:

PURSUANT TO CIVIL RULE 53 (B)
SEND FILE - STAMPED COPIES WITH
DATE OF JOURNALIZATION TO:

☒ ALL COUNSEL
☐ ALL PARTIES

also - Sandusky County Health Dept.

Date 5-22-84

STATE OF OHIO, EX REL. ANTHONY J.
CELEBREZZE, JR., ATTORNEY GENERAL
OF OHIO
Plaintiff,
v.
WASTE MANAGEMENT, INC. and
CHEMICAL WASTE MANAGEMENT, INC.
Defendants.

SANDUSKY COUNTY
COMMON PLEAS COURT
FILED
1984 MAY 22 PM 2:49
ALBERTA RATIBUN
CLERK

CONSENT DECREE

The Complaint in the above-captioned case having been filed herein, and the Plaintiff State of Ohio by its Attorney General Anthony J. Celebrezze, Jr. (hereafter "Plaintiff"), and the Defendants, Waste Management, Inc. (hereafter "WMI") and Chemical Waste Management, Inc. (hereafter "CWM"), having consented to entry of this Decree,

NOW, THEREFORE, without trial of any issue of fact or law, and upon consent of the parties hereto, IT IS HEREBY ORDERED, ADJUDGED, AND DECREED as follows:

I.

1. This Court has jurisdiction over the subject matter herein pursuant to Chapters 3704, 3734, 3767, and 6111 of the Ohio Revised Code and Ohio common law. The Complaint states a claim upon which relief can be granted against WMI and CWM under these statutes. This Court has jurisdiction over the parties hereto. Venue is proper in this Court.

II.

2. The provisions of this Consent Decree shall apply to and be binding upon the parties to this action, their agents, officers, employees, assigns, and successors in interest.

3. CWM shall incorporate in all contracts for work done to carry out the requirements of this Consent Decree at the Vickery Facility conditions that such work shall be done in compliance with these requirements.

III. SATISFACTION OF LAWSUIT

4. Plaintiff alleges in its Complaint that CWM has operated its Ohio Liquid Disposal hazardous waste facility near Vickery, Ohio (hereinafter the "Vickery Facility") in violation of various state hazardous waste, air pollution, water pollution, and nuisance laws. CWM neither admits nor denies those allegations. Compliance with the terms of this Consent Decree shall constitute full satisfaction of any civil or criminal liability by CWM, WMI and all their subsidiaries, employees, and former employees to the State of Ohio for all claims under such laws known to Plaintiff at this time. All such claims known to the State of Ohio have been alleged in the Complaint.

5. Nothing in this Decree shall be construed to limit the authority of the State of Ohio to seek relief for claims or conditions not alleged in the Complaint or addressed by this Consent Decree.

IV. CIVIL PENALTY

6. CWM shall pay or cause to be paid to the State of Ohio a civil penalty of five million dollars (\$5,000,000) in ten (10) equal annual installments of five hundred thousand dollars (\$500,000) a year for ten (10) years. The first installment of this penalty shall be paid within ten (10) days after entry of this Consent Decree and subsequent annual payments shall be made by the same date in subsequent years. Payment shall be made by delivering to the Manager of the Permits and Manifest Records Section of the Ohio Environmental Protection Agency Division of Solid and Hazardous Waste Management or to such person as may be otherwise specified in writing by the Ohio Environmental Protection Agency ("Ohio EPA"), for payment into the Hazardous Waste Cleanup Special Account created by Ohio Revised Code Section 3734.28, a certified check (or by other means acceptable to Ohio EPA) in such amount made to the order of "Treasurer of the State of Ohio".

V. REIMBURSEMENTS AND CONTRIBUTIONS

7. The State of Ohio alleges that it has incurred significant actual and imputed costs and expenses, incurred to date in the investigation of operations, records and environmental media at the Vickery Facility, and to be incurred in the future through the annual activities contemplated by this Consent Decree, including inspections, monitoring, environmental sampling and analysis, closure plan review, and waste products review process which will be necessitated by future construction, and operation of the Vickery Facility. In settlement of any claim which the State has for costs incurred as a result of such activities in 1984, CWM agrees to pay or cause to be paid to the State of Ohio compensation in the sum of three hundred thousand dollars (\$300,000). In settlement of the claim of the State for such future annual costs, CWM agrees to pay or cause to be paid to the State compensation in the liquidated amount of three hundred thousand dollars (\$300,000) during each calendar year from 1985 through 1993. All these payments are over and above any amounts paid by CWM pursuant to Paragraph 23 of this Consent Decree or Ohio Revised Code Section 3734.18. The first payment shall be within ten (10) days after entry of this Consent Decree, and subsequent annual compensation payments shall be made by the same date in subsequent years. All payments under this Section shall be to the Hazardous Waste Cleanup Special Account in the State Special Revenue Fund, created by Ohio Revised Code Section 3734.28, by delivering to the custodian of the Hazardous Waste Cleanup Special Account, with notice to the Manager of the Permits and Manifest Records Section of Ohio EPA, Division of Solid and Hazardous Waste Management, a certified check made to the order of "Treasurer of the State of Ohio."

B. CWM shall fulfill a Pledge of Contribution made by CWM to the Board of Commissioners of Sandusky County, Ohio and to the Sandusky County Board of Health in a total amount of \$2,000,000 paid over ten years in equal quarterly payments (except for the first year, for which payment has already been made).

VI. INJECTION WELL IMPROVEMENTS

9. CWM shall not inject waste into any injection well at the Vickery Facility until:

- (A) The well has been rebuilt to incorporate an annular seal system sufficient to maintain pressure on the annulus fluid independently from pressure on the waste in the injection tubing;
- (B) A sight glass has been installed to monitor the annulus fluid volume;
- (C) The following mechanical integrity tests have been conducted to determine that the well does not leak:
 - (1) a static annular pressure test of the long string casing, performed with an annular seal system set within thirty (30) feet from the bottom of the long string casing of the well; this test shall be conducted at a surface pressure of one thousand (1000) pounds per square inch gauge (p.s.i.g.) with no more than a three (3) percent loss of pressure during a one (1) hour period with the well in static and equilibrium conditions; and
 - (2) a radioactive tracer log test to determine points of fluid exit, if any, and possible upward migration of fluid outside the casing; and
- (D) Ohio EPA has agreed in writing that the above conditions have been met, provided, however, that execution of this Consent Decree constitutes agreement that such conditions have been met for injection wells 1A, 3 and 4, which may be operated pursuant to the terms and conditions of this Consent Decree.

VII. INJECTION WELL MONITORING, REPORTING AND OPERATION

10. CWM shall:

- (A) Maintain during injection of wastes at least fifty (50) p.s.i.g. positive differential pressure on the annulus fluid over injection pressure at the well annular seal system;
- (B) Not exceed during injection of wastes a surface pressure in excess of seven hundred ninety (790) p.s.i.g. on wastes in the injection tubing;
- (C) Not use explosives to cause fractures in any formation;
- (D) Assure that a major rise or major drop in injection pressure or pipeline pressure automatically shuts down the pump to the injection well; and
- (E) Not fracture any formation without written authorization from Ohio EPA.

11. During the operation of any injection well, CWM shall check and record the injection pressure, the annulus pressure, and the injection rate of each such well at least once every two (2) hours. A written and a continuous graphic record of all such injection pressures, annulus pressures, and injection rates for each well shall be kept at the Vickery Facility and made available for inspection and copying by Ohio EPA until three years after the plugging and abandonment of the well.

12. CWM shall submit to Ohio EPA a monthly report listing the daily minimum, maximum, and average injection pressures, annulus pressures, and injection rates for each well for each day during which waste was injected into the well during that month. For each minimum and maximum injection rate

reported, CWM shall list in the report the injection pressure and annulus pressure occurring during the time the well was operating at this minimum or maximum injection rate. Also included shall be a listing of the date, duration and cause of any non-operating period for each well during the month. The report for each month shall be due by the fifteenth (15th) day of the next month.

VIII. INJECTION WELL TESTING

13.(A) To ensure that all injection wells at the Vickery Facility are safely and properly operating, CWM shall perform integrity tests on each of these wells. For each of its injection wells, CWM shall perform the following tests annually (such annual period to commence from the last date on which such test(s) were performed):

- (1) a static annular pressure test of the long string casing, performed with the injection seal system set within thirty (30) feet from the bottom of the long string casing of the well, to be conducted at a surface pressure of no less than one thousand (1000) p.s.i.g. with no more than a three (3) percent loss of pressure during a one (1) hour period with the well in static and equilibrium conditions; and
- (2) a radioactive tracer log test to determine the points of fluid exit, if any, and possible upward migration of fluid outside the casing.

(B) During a major workover (i.e. when the injection tubing is removed from the well) on a well, CWM shall perform a static annular pressure test and radioactive tracer log test as described above, and a forty (40) arm caliper log test of the long string casing. In the event of a major workover, the testing required in Paragraph 13(B) shall constitute the testing required in Paragraph 13(A) for the twelve (12) months thereafter.

14. CWM will provide at least twenty-four (24) hours advance notice of major workovers to the Northwest District Office of the Ohio EPA and the Sandusky County Board of Health. It shall provide such notice ten (10) days in advance for the annual static annular pressure and radioactive tracer log tests. CWM will allow personnel from Ohio EPA and the Sandusky County Board of Health to observe all tests described in Paragraph 13(A) and (B). It will make all reasonable efforts to change the times of caliper tests and radioactive tracer log tests to facilitate attendance by such observers; provided, however, that it may perform such tests before the completion of a major workover on an injection well without prolonging the period such well would otherwise be out of operation.

15. Results of each test shall be reported to Ohio EPA and the Sandusky County Board of Health in writing within ten (10) days after completion of the testing period; provided, however, that test results or related reports received subsequently by CWM shall be reported within ten (10) days after receipt.

16. In observing the tests described in Paragraph 13(A) and (B), Ohio EPA shall contemporaneously inform CWM to the extent possible based upon the preliminary information and observations available at that time whether a test has been accurately or adequately performed. If Ohio EPA determines that the test has not been so performed, CWM shall conduct the test again. Within thirty (30) days after performing the tests, Ohio EPA will approve or disapprove in writing the results and field evaluation as accurate and acceptable. If the results are disapproved by Ohio EPA, Ohio EPA will specify the reasons for disapproval.

17. If any monitoring or testing described in Paragraphs 11 or 13(A) and (B) indicate that a leak may be occurring within or from an injection well, CWM shall immediately cease injecting wastes into such well and thereafter immediately inform the Division of Solid and Hazardous Waste Management of the Ohio EPA Northwest District Office and the Sandusky County Board of Health.

and shall perform sufficient tests and/or analyses to determine the cause of the testing or monitoring results. If a leak has occurred from the injection well, CWM shall not resume injection of wastes until CWM has reworked the well and Ohio EPA has agreed in writing that the tests specified in Paragraph 9(C) have demonstrated the integrity of the worked over well. If CWM or any of its employees receives information sufficient for a reasonably prudent person to recognize that the operation of an injection well violates a permit condition or applicable regulation in some other manner, CWM shall notify the Division of Solid and Hazardous Waste Management of the Ohio EPA Northwest District Office immediately and shall cease or correct such violation. In addition, if CWM or any of its employees receives information sufficient for a reasonably prudent person to recognize that continued operation of the well endangers public health, CWM shall immediately cease operation of the well until it has corrected such endangerment to the satisfaction of Ohio EPA. If Ohio EPA determines that the operation of an injection well violates applicable regulations, it may direct CWM to cease operation of the well until the violation is corrected. Notwithstanding the issuance of a permit(s) for the injection well(s) pursuant to the Underground Injection Control program under the Federal Safe Drinking Water Act, the requirements of Paragraphs 9 to 17 shall continue unless the conditions of such permit(s) are in conflict with the requirements of those paragraphs.

IX. OVERBURDEN GROUNDWATER TESTING

18. CWM shall conduct the following testing, monitoring, and reporting for the Vickery Facility surface impoundments:*

- (A) Install eighteen (18) temporary overburden groundwater sampling holes and include one (1) existing monitoring well at the locations shown on Attachment A for a single sampling event to sample the groundwater

*As used in this Consent Decree, the term "surface impoundments" means Ponds 4 (both open and closed portions), 5, 7; 11, 12 and the wet well, all as marked on Attachment A.

at a depth between fifteen (15) feet and twenty (20) feet below the original, natural ground surface; the details of the installation of these holes are to be submitted to Ohio EPA within thirty (30) days of approval of this Consent Decree;

(B) The overburden groundwater samples described in (A) above will be analyzed according to U.S. EPA approved standard methods for the following parameters: pH, Specific Conductance, Total Organic Carbon, Total Organic Halogens, Arsenic, Barium, Cadmium, Calcium, Chromium, Lead, Magnesium, Mercury, Selenium, Silver, Sodium, Sulfate, Carbonate, Bicarbonate, Chloride, Cyanide, Chloroform, 1, 1, 2 - Trichloroethane, 1,1,1 - Trichloroethane, Benzene, Trichloroethylene, Tetrachloroethylene, Toluene, Ethylbenzene, Chlorobenzene, and PCBs;

(C) The results of the analyses will be submitted to Ohio EPA within ninety (90) days after Ohio EPA approval of the submittal referred to in (A) above;

(D) In the event that concentrations of any parameter listed in 40 C.F.R. 265, Appendix III in a sample from a sampling hole(s) are in excess of the standards listed in such Appendix, and in the event that concentrations of such parameters are determined by Ohio EPA to be above natural background levels or above acceptable sampling and laboratory analysis interference or error, CWM shall submit to the Ohio EPA within sixty (60) days of this concentration determination, a plan for establishing a groundwater monitoring well(s) in the vicinity of the location(s) of the sampling hole(s) where such concentrations of tested parameters exceeded those standards; these monitoring wells shall be sampled and analyzed for the parameters exceeding those standards in accordance with the CWM groundwater monitoring plan for the Vickery Facility;

- (E) Such monitoring wells surrounding Ponds 4, 5 and 7 may serve as part of the monitoring system for the closure cell, if approved for such use by Ohio EPA; and such monitoring wells surrounding Ponds 11 and 12 may serve as part of the monitoring system, if any is required, for those Ponds when they are closed, if approved for such use by Ohio EPA.

X. DRINKING WATER WELL SAMPLING

19. CWM shall fund a program for the Sandusky County Board of Health to analyze off-site drinking water wells located near the Vickery Facility. The Sandusky County Board of Health shall collect the samples and pay for laboratory analysis of such samples. CWM shall reimburse the County for the costs of such analysis within thirty (30) days after the Board's submission of an invoice for these costs to CWM. The wells to be sampled, the sampling and analytical procedures, the parameters to be analyzed, and the laboratory to perform the analyses are to be mutually agreed upon from time to time by Ohio EPA, CWM, and the Sandusky County Board of Health. No more than ten (10) wells will be sampled and analyzed per quarter. This sampling and analysis shall be conducted quarterly for two (2) years after entry of this Decree, semi-annually for the next two (2) years, and annually thereafter for the next four (4) years. Analytical procedures used shall be U.S. EPA approved standard methods. Any of Ohio EPA, CWM or the Sandusky County Board of Health may observe any sampling or analyses performed pursuant to this program and may take a split sample of any sample so taken.

XI. AIR POLLUTION AND ODOR EMISSIONS

20. To abate air pollution and odor emissions at the Vickery Facility, CWM is prohibited from placing any waste receipts or allowing any waste receipts to be placed into surface impoundments at the Facility after the dates specified in this paragraph. If CWM chooses not to apply for permits or permit modifications* authorizing the installation of a tank based, enclosed

*These permits and permit modifications are the permits to install for the tank, as required Federal RCRA Part 2. Any tank installed after the date of

treatment and storage system, or fails to submit applications for all such permits and permit modifications within four (4) months after entry of this Decree, CWM shall cease the receipt of waste at the Vickery Facility within four (4) months after entry of this Decree. Should CWM decide to install the tank system, CWM shall submit applications for these permits and permit modifications to the appropriate governmental agencies as soon as possible, but in no event later than four (4) months after entry of this Decree. If CWM submits such applications within four (4) months, CWM shall be prohibited from placing any waste receipts or allowing any waste receipts to be placed into the surface impoundments at the Vickery Facility more than sixteen (16) working months after receiving final agency action on such applications. In addition, CWM shall install at the Vickery Facility a truck wash and unloading facility by November 1, 1984. This truck wash and unloading facility shall be installed in accordance with Permit to Install 03-1567 issued to CWM. CWM shall treat and store malodorous waste streams in tanks equipped with odor control equipment. Such waste streams shall include those identified in CWM's letter to Ohio EPA, dated August 19, 1983 (Attachment B hereto), and other waste streams agreed upon by CWM and Ohio EPA from time to time. If Ohio EPA determines that receipt of a new waste stream subsequent to the entry of this Consent Decree causes a malodorous condition, CWM shall handle such waste stream in an enclosed manner, cease acceptance of the waste stream, or take other measures to prevent such conditions from subsequent receipts of that waste stream.

21. To control emissions of air pollutants from the Vickery Facility, CWM shall install best available technology on hazardous waste storage and treatment tanks and the facility for truck unloading and internal truck washing, as described in this Paragraph. Tanks shall be controlled by closed systems vented to emissions control devices. CWM shall amend its waste analysis plan by July 1, 1984 to include volatile organic analyses in all waste profile analyses performed after that date and in all annual recertifications of waste streams required in CWM's waste analysis plan for the Vickery Facility after that date. CWM shall place into a tank(s) vented to an activated carbon system(s) all waste streams determined by waste

profile analyses or recertifications after July 1, 1984 to contain greater than a five (5) percent concentration of volatile organic constituents. Other waste streams shall be placed in a tank(s) vented to a caustic scrubber system designed to control odor and other emissions consistent with the system described in Attachment IV of CWM's submission of February 2, 1984 to Ohio EPA (Attachment C hereto). CWM shall capture as many emissions as practicable from the truck unloading and internal washing operations and vent them to such caustic scrubber system, provided that emissions from unloading trucks with waste streams containing greater than five (5) percent concentrations of volatile organic constituents shall also be treated with an activated carbon control system. Such trucks shall not be internally washed in the facility unless emissions from that operation are similarly treated.

XII. SURFACE WATER MONITORING AND REPORTING *Trent*

22. In order to assure that contaminants are not discharged from the surface of the Vickery Facility into surface waters of the state, for a period of six (6) months from entry of this Consent Decree CWM shall weekly sample and analyze the water upstream and downstream from the runoff point(s) from the Vickery Facility for pH, Chemical Oxygen Demand, Oil and Grease, Phenols, Chlorides, Cadmium, Chromium, Copper, Lead, Zinc, and Mercury and shall monthly sample and analyze this water for Total Organic Halogens. Thereafter, CWM shall sample and analyze surface water on a monthly basis unless and until Ohio EPA Permit To Install 03-1567 is amended to modify or terminate this requirement.

XIII. SITE MONITORING

23. Until six (6) months after the closure of the last surface impoundment at the Vickery Facility, CWM shall pay to Ohio EPA forty thousand dollars (\$40,000.00) per year to fund inspection and monitoring of the Vickery Facility by Ohio EPA unless and until legislative authorization specifically provides funding for a full time (40 hours per week) Ohio EPA inspector at the Vickery Facility. This money will be used to reimburse Ohio EPA for employees'

salaries, equipment, transportation, and other expenses incurred in monitoring the Vickery Facility forty (40) hours per week. These payments shall be made by certified check made to the order of "Treasurer, State of Ohio" and delivered to the Manager of the Permits and Manifest Records Section of the Ohio EPA Division of Solid and Hazardous Waste Management or to such person as may be otherwise specified in writing by Ohio EPA. The first payment shall be made within ten (10) days after entry of this Consent Decree and subsequent payments shall be made by the same date in subsequent years. These payments shall be made by checks separate from the checks written pursuant to Parts IV and V of this Consent Decree.

XIV. CLOSURE OF SURFACE IMPOUNDMENTS

24. CWM shall close the existing surface impoundments at the Vickery Facility as described in Parts XIV and XV of this Consent Decree. CWM shall pump non-oily liquid wastes (hereafter "aqueous material") from the surface impoundment being closed into the remaining surface impoundments and ultimately into the injection wells at the Vickery Facility. All oily liquid material from the surface impoundments and Miscellaneous Facilities (as defined in Part XVI below) shall be disposed of off-site. Except as provided below, CWM shall provide for decontamination of hazardous wastes and for decontamination of PCBs to background levels by taking the following actions: removal of all of the sludge, contaminated debris, other solids, and at least half a foot of clay* from the bottom and sides of the surface impoundment being closed; treatment of the sludge by chemical fixation; and disposal of the fixed sludge and other removed material in a closure cell** to be

*As used in this Consent Decree, "clay" means native soils consisting primarily of clay and/or clay mixed with silt which are included within Designation CL, ML, CH, or MH of the Unified Classification System published in Earth Manual, Water Resources Technical Publication, U.S. Department of the Interior, Bureau of Reclamation, Second Edition 1974, Appendix Designation E3.

**For purposes of this Consent Decree, closure cell should be construed as cell or cells.

constructed within the approximate boundaries of Ponds 4, 5 and 7. The method of fixation used shall be selected from those evaluated by the Battelle Memorial Institute study referred to in Paragraph 28(A)(1). A clay liner and surface run-on and run-off control shall be provided in the area east of Pond 4 and this area shall be used to stockpile fixed sludge, excavated clay, rip rap and other materials to be disposed in accordance with this Consent Decree.

25. The closure cell shall be constructed and operated in compliance with 40 C.F.R. §761.75, Ohio Administrative Code ("O.A.C.") 3745-66-10 through 3745-66-20, O.A.C. §3745-67-28, and as generally described in this Consent Decree. The closure cell shall be used for disposal of the following:

(a) clay, fixed sludge, contaminated debris, and other solids from the wet well, and Ponds 4, 5 and 7; (b) rip rap or PCB contaminated surface coatings from rip rap in Ponds 4, 5, 7 and 11; (c) the temporary stockpile liner specified in Paragraph 28(A)(4); (d) other materials specified in Paragraph 29 of this Consent Decree; (e) material which may become contaminated with PCBs as a result of implementing this Consent Decree; and, (f) if sufficient airspace remains in the closure cell after such disposal, clay and solidified sludge from Ponds 11 and 12 and rip rap from Pond 12. If sufficient airspace does not remain in the closure cell, CWM shall dispose of solidified sludge from Ponds 11 and 12 and rip rap from Pond 12 in place in one or both of those Ponds as a closure cell in accordance with federal and state regulations applicable at that time. CWM shall utilize the closure cells only for disposal of materials necessary to accomplish closures and other actions required by Paragraphs 24 to 29 of this Consent Decree. No materials other than those specified by this Consent Decree shall be disposed of in these closure cells.

26. The closure cell shall be located within the approximate boundaries of Ponds 4 (both the closed and open portions), 5 and 7. The bottom of the closure cell shall include backfill of native soil, an underdrain, a clay liner, a synthetic liner, and a leachate collection system. Fixed sludge from Pond 4 containing dioxin shall be segregated in an identified portion of the

closure cell. The cap of the closure cell shall consist of a minimum of two (2) feet of clay compacted to 1×10^{-7} centimeters per second permeability, a synthetic liner, and one (1) foot of native soil. CWM shall grade and seed the cap to promote runoff to the surrounding site area. CWM shall dispose of leachate collected in the leachate collection system and shall perform post-closure monitoring and maintenance. CWM shall cause the liquid from the underdrain to be collected for treatment or disposal. CWM shall analyze at the scheduled groundwater monitoring times the water from the underdrain for PCBs, conductivity, and the parameters listed in Paragraph 22 above. CWM shall submit final plans and specifications for the closure cell to Ohio EPA for approval as CWM's closure plan for Ponds 4, 5, 7, the wet well, and the Miscellaneous Facilities, and to U.S. EPA for approval as a chemical waste landfill pursuant to 40 C.F.R. 761.75.

27. Within six (6) months after entry of this Consent Decree, CWM shall implement the actions authorized by Ohio EPA Permit to Install 03-1567, except for actions which cannot be implemented until Ponds 4, 5 and 7 are closed, and as noted below. Actions which may be authorized by approved modifications to the Permit to Install, if any, shall be implemented within the time(s) contained in approvals by Ohio EPA. Actions with regard to containment structures around pump houses and surge tanks, the sampling station, and final roadway construction shall be implemented within twelve (12) months after the entry of this Consent Decree. Actions with regard to houses around wellheads for injection wells 2, 5 and 6; the oil/water unloading area; final cap, grading and vegetation over closed Ponds 1, 2, 3, 6 and 9; and final grading in the northwest field shall be implemented as soon as practicable after completion of associated construction.

XV. SCHEDULE FOR CLOSURE

28. CWM shall implement the surface impoundment closures in accordance with the following schedule, with the exceptions noted below:

(A) Present Pond Closure

- (1) Submit the final study on fixation of sludges being conducted by Battelle Memorial Institute to Ohio EPA upon receipt of the study by CWM; CWM shall use its best efforts to obtain this report by May 31, 1984. In any event, CWM shall provide Ohio EPA with such information as Battelle has provided CWM by that date, and this information shall be used as the basis for determining the method of fixation of sludges for the purpose of taking the action described in Paragraph 28(A)(5);
- (2) To assist in the development of a closure plan, CWM shall perform a pilot study to chemically fix and excavate sludges and at least one-half foot of clay from the wet well; and, until a clay liner has been constructed as the base for a temporary stockpile adjacent to Pond 4, place this material on the closed end of Pond 4, after grading to prevent run-on and to divert run-off into Pond 4; and to provide for this placement, CWM shall remove uncontaminated soil and rubble located above elevation six hundred nineteen (619) feet mean sea level on the closed end of Pond 4 to the borrow pit to the west of Pond 12;
- (3) Submit a complete closure plan for approval to Ohio EPA for Ponds 4 (both closed and open portions), 5 and 7, and a complete application for approval of a closure cell for such closure to U.S. EPA within four (4) months after agreement on a method for fixation of sludges by CWM and Ohio EPA; these submittals shall provide for control of dust and fugitive emissions from truck traffic, equipment operation, chemical fixation, earthmoving, and other activities resulting from the closure process; the closure plan application to Ohio EPA shall be acted upon by Ohio EPA in accordance with its normal administrative procedures; execution of this Consent Decree does not impair the administrative procedures employed by Ohio EPA in evaluating this submittal;

(4) Construct a temporary stockpile area to the east of Pond 4 which shall include a clay liner and shall be bermed to prevent run-on and run-off; place contaminated portions of the liner and associated berms in the closure cell after the remedial work is accomplished; and

(5) Within twenty-four (24) working months after final approval of the submittals referred to in Paragraph 28(A)(3), empty liquid material from Ponds 4, 5 and 7; excavate and chemically fix the sludge; excavate the rip rap and at least one-half foot of the clay from the interior surfaces; construct the closure cell; place the clay, rip rap, fixed sludge, and other materials specified in the Consent Decree in the closure cell; and construct a cap over the closure cell.

(B) Future Pond Closures

(1) Submit closure plan for approval to Ohio EPA (and, if Ohio does not then have authorization under RCRA, also to U.S. EPA) for Ponds 11 and 12 within nineteen (19) months after receiving final action on permits for the tank system referred to in Paragraph 20;

(2) Empty liquid material from Ponds 11 and 12 within a period of time determined by reference to the formula set forth in Attachment D;

(3) Excavate rip rap from Pond 11, and either dispose of it off-site in conformity with 40 C.F.R. 761.75 or place it in the previously closed closure cell(s) referred to in Paragraph 28(A)(3) and (5), and re-construct the cap within three (3) working months after either:

(a) the last of the final approval(s) referred to in Paragraph 28(B)(1); or

(b) the completion of the action referred to in Paragraph 28(B)(2);

whichever occurs later; and

(4) Solidify the sludge and close Ponds 11 and 12 within the nine (9) working months after either:

(a) the last of the final approval(s) referred to in Paragraph

28(B)(1); or

(b) the completion of the action referred to in Paragraph

28(B)(2);

whichever occurs later.

(C) Exceptions

"Working months" as used in this Consent Decree is defined to exclude periods of extreme weather, as agreed by the parties. Extreme weather may include: warm weather producing excessive odor from sludge handling or inhibiting liner installation; freezing weather or heavy rains inhibiting cement work, sludge fixation, sludge or soil handling, and/or liner installation; and other extreme weather conditions. If any of the parties determine that warm weather is causing excessive odor from sludge handling, it shall immediately inform the other parties. If all parties agree, such activities may be curtailed until weather conditions no longer cause excessive odor. The schedules contained in Paragraph 28(A)(5) and (B)(3) do not include any period during which such actions are curtailed because of such determination. If CWM determines that extreme weather conditions inhibit cement work, sludge fixation, sludge or soil handling, and/or liner installation, it shall immediately inform the other parties. If all parties agree that such weather conditions inhibit cement work, sludge fixation, sludge or soil handling, and/or liner installation, such activities may be curtailed until weather conditions no longer inhibit them. The schedules contained in Paragraph 28(A)(5) and (B)(3) do not include any such period. These exceptions notwithstanding, the schedule contained in Paragraph 28(A)(3) shall not exceed thirty six (36) months and the schedule contained in Paragraph 28(B)(3) and (4) shall not exceed fifteen (15) months.

XVI. CLOSURE OF MISCELLANEOUS FACILITIES

29. CWM shall remove or decontaminate the buried oil/water separation tank, the concrete oil pit and oil water trench, that portion of a buried pipe line between sampling points designated as ORT-2 and ORT-10, and adjacent contaminated soil and berms, if any; all identified on the map attached to this Consent Decree as Attachment E (together the "Miscellaneous Facilities"). CWM shall remove all sludge with PCBs in concentrations over 500 ppm of PCBs and all free oil containing PCBs from the Miscellaneous Facilities and dispose of them off-site in accordance with 40 C.F.R. Part 761. Aqueous material from the Miscellaneous Facilities shall be pumped to the remaining surface impoundments and ultimately into injection wells at the Vickery Facility. Other material from the Miscellaneous Facilities contaminated with PCBs in regulated concentrations shall be decontaminated or shall be disposed of in the closure cell when it is constructed. Prior to construction of the closure cell, such material shall be handled in the same manner as the material from the Wet well as set forth in Paragraph 28(A)(2).

XVII. WASTE OILS

30. CWM shall not accept at, reclaim at, or sell oil products from the Vickery Facility until it has developed a comprehensive program for the waste oil* facility operation which provides for implementation of the requirements in Paragraphs 31 through 35 below, and has received approval of that program from the Ohio EPA. CWM shall conduct waste oil operations according to that program and applicable regulations. CWM shall install the best available technology to control emissions from oil reclamation and storage tanks and processing units.

*The term "waste oil" includes used oil and off-specification oil products.

31. Pursuant to this waste oil program, CWM shall comply with the following procedures relating to the acceptance of waste oil:

- (A) CWM shall require the oil generator to provide to CWM a description of the oil and the process whereby it is generated;
- (B) CWM shall perform an acceptance analysis on a representative sample of the oil provided by the generator. This acceptance analysis shall include the bottom sludge and water (BS&W) test, a PCB test, a chlorinated solvent gas chromatographic test, a BTU determination, a total ash determination, a specific gravity determination, and a general gas chromatograph screen; and
- (C) CWM shall provide for receipt analysis of incoming loads, which shall include a BS&W test, a chlorinated solvent gas chromatographic test, and a PCB determination.

32. CWM shall not accept at the Vickery waste oil facility hazardous waste as defined by either O.A.C. Chapter 3745-51 or 40 C.F.R. Part 261, except in conformity with O.A.C. Chapter 3745-51-06 and 40 C.F.R. §261.6, or future regulations governing wastes or oils which are used, re-used, recycled, or reclaimed.

33. Pursuant to this waste oil program, CWM shall operate its waste oil facility according to the following procedures:

- (A) CWM shall keep records of all transfers of waste oil within the facility;
- (B) CWM shall provide for review of all waste oil streams by the Ohio EPA through the procedures set forth in Part XVIII of this agreement; Ohio EPA's approval of waste oil streams will specify permissible end uses for the reclaimed product from that waste oil stream;
- (C) CWM shall not place material into the oil facility which has been taken from surface impoundments at the Vickery Facility.

34. Pursuant to the waste oil program, CWM shall comply with the following provisions relating to the sale of waste oil:

- (A) CWM shall keep accurate records of all oil materials sales, including the customer, date and amount of sale, and analytical records of each oil product sold;
- (B) CWM shall analyze each oil product sold to determine heat value, solid or sediment content, PCB content, chlorinated solvent content, and total ash content;
- (C) CWM shall sell oil products for industrial uses only and is prohibited from selling oil products for road oiling or dust control purposes; CWM shall sell oil products only for the permissible end uses specified by Ohio EPA pursuant to Paragraph 33(B) above.

35. CWM is permanently enjoined from accepting at the Vickery Facility any waste oil which contains PCBs, determined by standard U.S. EPA approved chromatographic analytical techniques approved by Ohio EPA in the program required by Paragraph 30. This prohibition against receipt of waste oil containing PCBs shall be included in the program submitted by CWM to Ohio EPA pursuant to this Decree.

36. Before resumption of its waste oil operations, CWM shall decontaminate the oil processing facility at the Vickery Facility to remove all PCBs which are currently at the facility. This decontamination shall be done in accordance with all existing TSCA regulations. All materials generated in this process will be disposed in accordance with the TSCA regulations.

XVIII. WASTE PRODUCTS REVIEW

37. By July 1, 1984, CWM shall submit to Ohio EPA for review and approval a waste analysis plan which complies with the requirements of O.A.C. 3745-65-13. This waste analysis plan shall include, at a minimum, all of the provisions contained in the draft waste analysis plan dated October 31, 1983 which has been submitted to Ohio EPA by CWM. Before waste oil is accepted for recycling at the Vickery Facility, the plan shall be amended to provide for the implementation of all of the requirements in Part XVII above.

38. Within thirty (30) days after entry of this Consent Decree, CWM shall submit to Ohio EPA a list of all waste streams from which it had received waste loads in the twelve (12) months prior to entry of this Consent Decree. CWM is prohibited from accepting a waste load from a waste stream not on that list without giving Ohio EPA at least ten (10) days advance notice. Such notice shall include the submission of information required by Ohio EPA to make the determinations outlined in (A) through (E) below. CWM shall not accept such waste if, within ten (10) days after receiving CWM's submission of information, Ohio EPA has notified CWM of Ohio EPA's determination that:

- (A) The waste is not among those which the Vickery Facility is authorized to accept by a permit issued for it by the Ohio Hazardous Waste Facility Approval Board;
- (B) Acceptance of the waste at the Vickery Facility is contrary to specific regulation promulgated by Ohio EPA;
- (C) The waste is incompatible with the inventory of wastes at the Vickery Facility or acceptance of the waste would cause harm to the environment or to operation of the Vickery Facility as a result;
- (D) The waste differs in a material respect from other wastes accepted at the Vickery Facility in a manner that will cause harm to the environment even if properly disposed of at the Vickery Facility;

(E) The waste contains PCBs, as determined by the standard U.S. EPA approved chromatographic analytical techniques approved by Ohio EPA; or

(F) Specific additional information must be provided to Ohio EPA to characterize the waste or to make the determinations outlined in (A) through (E) above.

39. Ohio EPA shall timely review all requests from CWM for new waste streams but shall respond within five (5) days after receiving CWM's submission of information for requests made in the ordinary course of business and shall respond within twenty-four (24) hours after receiving CWM's submission of information for emergency requests. Emergency requests shall include but will not be limited to waste streams from spills, boiler cleanouts, and lagoon cleanouts.

40. CWM shall allow Ohio EPA annually to review all documents submitted to CWM pursuant to its waste analysis plan and all other documents received by CWM from waste generators to determine whether or not the acceptance of the waste streams taken at the Vickery Facility during the past year comply with the permits, laws, and rules applicable to the Vickery Facility and are compatible with the waste handling methods used at this Facility. If, as a result of such review, Ohio EPA determines that a waste stream does not meet the criteria established in Paragraph 38, CWM shall not accept further waste loads of that waste stream at the Vickery Facility.

XIX. PUBLIC INFORMATION

41. Upon the formation of a Committee consisting of the Sandusky County Health Commissioner (the Chairman of the Committee), two (2) members of the Sandusky County Board of Health, three (3) local citizens appointed by the Health Commissioner (none of which shall be litigants or representatives of litigants against CWM), and an Ohio EPA official(s), CWM shall hold a meeting at the Vickery Facility at the request of the Chairman, on a frequency of no more than once a month, in order to answer questions and complaints concerning

the operation of the Vickery Facility, to provide the Committee with an update on activities taken pursuant to this Decree, and to give the Committee a tour to observe the activities taken to implement this Decree. CWM is not obliged to disclose financial or otherwise confidential information (as defined by D.A.C. 3745-49-03) at such meetings. The requirements of this paragraph shall terminate when the Vickery Facility is closed.

XX. MANAGEMENT AUDITS

42. CWM shall conduct an annual environmental compliance audit of its operating facilities in Ohio. In addition, CWM shall appoint an independent auditor acceptable to Ohio EPA, which auditor shall annually audit the effectiveness of the compliance, audit and employee reporting mechanisms implemented by CWM at their operating facilities in Ohio. This audit shall be reported to CWM and shall recommend specific improvements in CWM's environmental compliance, environmental compliance audit, and employee and management environmental compliance reporting systems.

XXI. STIPULATED PENALTIES

43. In the event CWM violates a provision or provisions of this Decree, CWM shall automatically pay to the State of Ohio a stipulated civil penalty for each violation specified below in the following amounts:

\$50,000 for any violation of Paragraphs 9(D), 13, 16, 30 (the first sentence only), 31(B), 31(C), 34(B), 34(C), 35, or 36;

\$10,000 for any violation of Paragraphs 10 (except that automatic pressure recorder readings which show a differential pressure of less than 50 p.s.i.g. or a surface pressure of more than 790 p.s.i.g. due solely to power failure or recorder malfunctions are not subject to stipulated penalties), 28(A)(5), 28(B)(4), 31(A), 32, 34(A), 37, 38, or 40;

\$5,000 for any violation of Paragraphs 11, 12 (except the last sentence), 18, 19, 22, or 33; and

\$1,000 for any violation of paragraphs 12 (last sentence only), 14, 20, 24, 25, 26, 27, 28(A)(1), 28(A)(3), 28(B)(1), 28(B)(2), 28(B)(3), or 29.

These penalties do not apply to errors in record keeping or reporting which CWM demonstrates to Ohio EPA were unintentional, insubstantial, and immaterial.

These penalties shall be paid within ten (10) days after the occurrence of the violation by delivering to Plaintiff's counsel or a successor in his office, for payment into the Hazardous Waste Cleanup Special Account, a certified check in such amount made to the order of "Treasurer, State of Ohio." These stipulated penalties are not to be suspended in part or in whole. CWM waives all rights it may have to contest the imposition of these stipulated penalties for violations of the Consent Decree, except the defense that the violation did not in fact occur.

In addition, the parties agree that in any action to enforce the portions of this Consent Decree which are not subject to stipulated penalties pursuant to Paragraph 43, CWM may raise at that time the issue of whether it is entitled to raise a defense that its violation of the terms hereof resulted from causes beyond its control, such as, but not limited to, acts of God, of public enemies, conflicting orders of an entity having police power and jurisdiction over CWM, or impossibility of the performance of the terms hereof. While Plaintiff disagrees that such a defense exists, the parties do, however, agree and stipulate that it is premature at this time to raise and adjudicate the existence of such a defense, and that the appropriate time to adjudicate the existence of such a defense is at such time that Plaintiff seeks to enforce such provisions of this Consent Decree.

Plaintiff does not waive any rights it may have in contempt or otherwise to seek redress for violations of Ohio Revised Code Chapters 3704, 3734, 3767, or 6111 or for violations of this Decree. However, upon tender of any stipulated penalty for a violation pursuant to Paragraph 43 and acceptance thereof by the State of Ohio, CWM shall be deemed to have been subject to enforcement action for that violation and shall not thereafter be subject to any additional penalty or other relief for that violation.

XXII. MISCELLANEOUS

44. CWM shall comply with the reporting requirements of its permits for the Vickery Facility and, in addition, shall notify the Division of Solid and Hazardous Waste Management of the Ohio EPA Northwest District Office as soon as practical, but in no event later than two (2) hours after discovery of any waste spill, or unpermitted discharge of waste into waters of the State.

45. CWM shall submit to Ohio EPA a monthly progress report describing all actions which have been taken to implement Paragraphs 18, 20, 21, 28, and 29 of this Consent Decree. The report for each month shall be submitted by the fifteenth (15th) of the following month. The requirements of this paragraph shall terminate when all of the actions required in Paragraphs 18, 20, 21, 28 and 29 have been completed.

46. CWM is hereby prohibited and enjoined from violating any terms or conditions of permits issued by Ohio EPA and the Hazardous Waste Facility Approval Board which are applicable to the Vickery Facility. CWM is also prohibited and enjoined from violating Ohio Revised Code Sections 3704.05, 3734.11, 3734.12, 3767.13, 6111.043, 6111.04, 6111.07, and the hazardous waste rules promulgated pursuant to Ohio Revised Code Section 3734.12 which are applicable to the Vickery Facility.

47. CWM shall allow personnel from Ohio EPA and its authorized representatives (none of which authorized representatives shall be litigants or representatives of litigants against CWM), access to the Vickery Facility to monitor compliance with this Consent Decree without a warrant. Any person taking a sample for analysis in the implementation of or to determine compliance with the requirements of this Consent Decree shall provide the parties to this Decree, upon request, with splits of that sample.

48. Nothing in this Consent Decree shall relieve CWM of its obligations to comply with applicable federal, state or local statutes, regulations or ordinances or shall constitute a waiver or release of any right, remedy, defense or claim of CWM with regard to any person not a party to this Consent Decree.

49. The Findings and Orders of the Director of Ohio EPA dated June 30 and July 19, 1983, in the matter of Chemical Waste Management, Inc. are withdrawn and replaced by this Consent Decree. The parties shall so notify the Ohio Environmental Board of Review and withdraw from the Board the proceeding before it regarding such Findings and Orders, Chemical Waste Management, Inc. v. Maynard, E.B.R. 721049.

50. The Court shall retain jurisdiction of this matter for the purpose of enabling any party to apply to the Court for any further orders necessary to construe, carry out, modify, or enforce compliance with the term of this Consent Decree, including disputes arising out of actions or determinations of Ohio EPA taken on submissions or otherwise made pursuant to this Consent Decree.

51. All reports, requests, or information submitted to Plaintiff by CWM pursuant to this Consent Decree shall be submitted to:

Ohio EPA

Richard L. Shank, Manager
Surveillance and Enforcement Section
Division of Solid and Hazardous Waste Management
Ohio Environmental Protection Agency
361 East Broad Street
Columbus, Ohio 43215

or to such persons and addresses as may hereafter be otherwise specified, in writing, by Plaintiff to CWM. All reports, requests, or information submitted to CWM by Plaintiff pursuant to this Consent Decree shall be submitted to:

Frederick Roberts
Senior Vice President
Chemical Waste Management, Inc.
3003 Butterfield Road
Oak Brook, Illinois 60521

or to such persons and addresses as may be otherwise specified, in writing, by CWM to Plaintiff.

CHEMICAL WASTE MANAGEMENT, INC.

By: Jeffrey G. Miller
Bergson, Borkland,
Margolis and AdlerBy: Joseph H. Knott
President,
Chemical Waste Management, Inc.

WASTE MANAGEMENT, INC., Guarantor

By: Jeffrey G. Miller
Bergson, Borkland, Margolis & Adler
11 Du Pont Circle, N.W.
Washington, D.C. 20036
(202) 462-5930

52. Where this Decree requires actions (including monetary payments) to be performed by CWM, Defendant WMI shall be the guarantor of CWM and shall assume the responsibility to perform such actions if not performed by CWM. WMI shall be liable under this Decree if WMI fails to perform actions not performed by CWM.

Judge, Court of Common Pleas

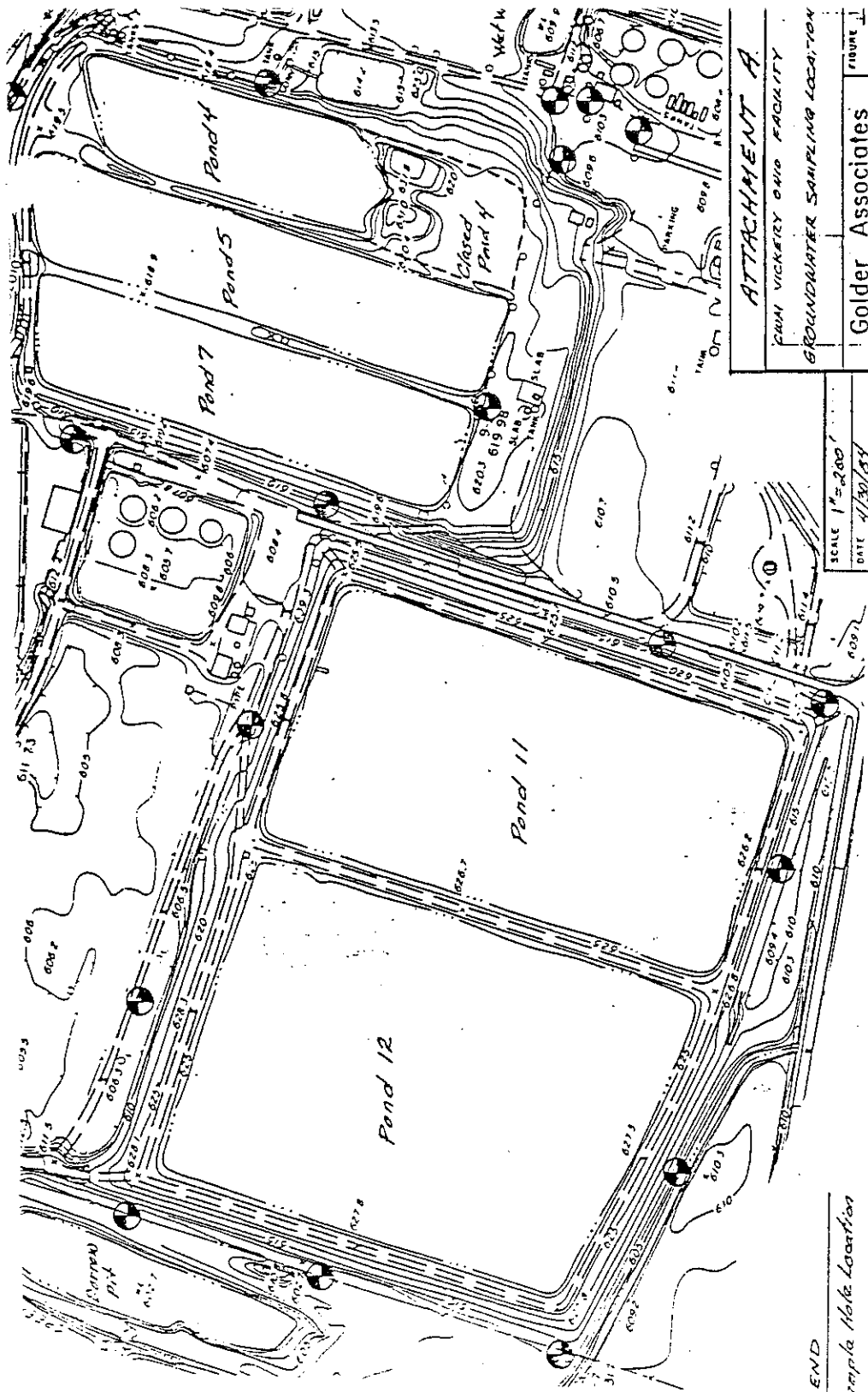
APPROVED:

STATE OF OHIO, ex rel. Anthony J.
Celebrezze, Jr., Attorney General of Ohio

By: Anthony J. Celebrezze, Jr.
Anthony J. Celebrezze, Jr.
Attorney General of Ohio

By: Jack A. Van Kley
Jack A. Van Kley
Assistant Attorney General

By: Susan E. Flannery
Susan E. Flannery
Assistant Attorney General
Environmental Enforcement Section
30 East Broad St., 17th Floor
Columbus, Ohio 43215
(614) 466-2766



ATTACHMENT A
 DAIRY VICKREY OHIO FACILITY
 GROUNDWATER SAMPLING LOCATION

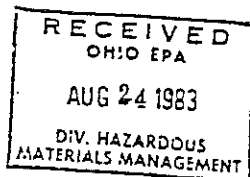
Golder Associates
 FIGURE 1

SCALE 1"=200'
 DATE 4/30/84

LEGEND
 Sample Hole Location



Chemical Waste Management, Inc.
3956 State Rt. 412
Vickery, Ohio 43464
419/457-779



CERTIFIED MAIL
RETURN RECEIPT REQUESTED

August 19, 1983

Mr. Richard Shank
Surveillance and Enforcement Section
Ohio Environmental Protection Agency
361 East Broad Street

Re: Chemical Waste Management, Inc.
Vickery, Ohio

Dear Mr. Shank:

Our current plans are to also treat some quantities of each of the following waste streams through our odorous treatment tank system instead of through our pond system. These streams are in addition to the original waste streams we advised we would be treating; NW's 2079, 2075, 2336 and 2074.

CWM ID NUMBER

CUSTOMER

NW 2106	Bofors Nobel, Inc. <i>no receipt</i>
NW 2327	<i>Not used</i> Shamrock Corporation <i>no receipt</i>
NW 2068	McKesson Envirosystems Company <i>no receipt</i>
NW 868	E.I. DuPont de Nemours & Co., Inc. <i>no receipt</i>
NW 1889	Republic Steel Corporation
NW 2187	Combustion Engineering, Inc. <i>not included incog.</i>
NW 451	Republic Steel Corporation
NW 3050	Petrochem Processing, Inc. <i>no receipt</i>
NW 3051	Petrochem Processing, Inc. <i>no receipt</i>

I have enclosed copies of the Waste Material Profile Sheets you requested for all of the above mentioned waste streams.

If you have any questions, please let me know.

Sincerely,

CHEMICAL WASTE MANAGEMENT, INC.

Lee Archambeau
Lee Archambeau
General Manager

LEA/dw

Enclosures: Waste Material Profile Sheets

ATTACHMENT C

ATTACHMENT IV

Design Objectives and Basis for the Air Scrubber
at Chemical Waste Management, Inc.
Vickery, Ohio.

1.0 INTRODUCTION

The purpose of the attachment is to present a summary of the design and performance objectives, design approach/philosophy, and technical basis for the air emissions scrubber installed at Chemical Waste Management, Inc., Vickery, Ohio. The scrubber is designed to control emissions from tank truck unloading as well as storage tank vent emissions, which include both inorganic and organic pollutants. Section 2.0 addresses design and performance objectives, and Section 3.0 addresses the technical basis.

2.0 DESIGN AND PERFORMANCE OBJECTIVES

As stated in the permit applications and supporting documents, the scrubber is designed to control air emissions from the unloading of odorous wastes, from the unloading of strong acid wastes, and from the storage tanks used in the odorous waste treatment system. There were several design criteria and constraints which were inherent in the scrubber design. The principal constraints were:

- The principal objective was odor control, where both organic and inorganic constituents contribute to odor perception.
- Although the flowrate to the scrubber is designed to be relatively constant, the pollutant loading will vary widely in both amount and chemical composition. Both organic and inorganic pollutants will be present.
- The composition of the gas to the scrubber is highly variable, and varies as a function of incoming waste types, load-to-load variation in composition for a given waste, ambient temperature changes, and plant operation cycles.
- There is a requirement to maintain safe operating conditions in the unloading operations, specifically the receiving sump tanks.
- There are structural limitations of the existing storage tanks used in the odorous waste treatment system. The existing storage tanks predominantly affect allowable pressure drop across the tank vent header and the scrubber system.

- It is necessary to design, construct, and commission an air pollution control system for odors within a very short time frame.

These constraints have been incorporated in the scrubber system constructed at Vickery.

As a result of these constraints, the key design objectives were:

- capability to control both organic and inorganic pollutants;
- flexibility to change scrubber solutions as the waste composition changes over time;
- large liquid reservoir with buffering capacity to be able to handle short-term, high-load conditions;
- materials of construction selection to allow for a wide range in pollutants, scrubber solutions, and operating conditions;
- safe operating practices for both the receiving sumps and for the storage tanks.

Two existing, on-site, carbon steel scrubber shells were selected for the system, to expedite construction. One shell was modified for the scrubber vessel, and the other was modified to become the scrubber liquor holding tank. Both vessels were lined with high quality acid and chemical resistant material (RT 222 manufactured and installed by Cellicote Company), in order to substantially increase the system flexibility for gas phase constituents and for scrubber solutions.

The capacity of major equipment components was dictated by the air flow required to maintain the receiving sumps at a safe condition. The specified gas flow rate is designed to maintain less than 10% of the lower explosive limit (LEL) within the odorous waste receiving sump, assuming a worst case situation of 100% methyl alcohol as the liquor within that sump, and simultaneously accommodate the maximum potential gas evolution rate from the storage and treatment tanks.

The principal design details are:

Tower Diameter (inside), ft	5
Packing height, ft	9
Vapor Rate, cfm (cfs)	3000 (50) approx.
Scrubber liquid	Dilute caustic, oxidizers and other reagents as needed. 1" polypropylene Tellerettes packing
Liquid flow rate, gpm	350
Gas phase pressure drop, in. H ₂ O	2.0"

The scrubber as constructed allows the flexibility to adjust operating parameters to maximize odor control performance as pollutant loading changes over time.

The system design, therefore, is primarily based on gas flow and system operations flexibility requirements. Both quantitative pollutant composition data as available and engineering estimates were also used in the design of the system. These are described in the next section.

3.0 TECHNICAL BASIS

Qualitative information and engineering analysis of similar situations were used to design the scrubber system. Comprehensive quantitative information on gas composition was not feasible within the time frame in which the system was to be installed. Further, as stated before, the variability in waste loads and subsequent emissions would preclude an exhaustive analytical evaluation. Therefore, the design proceeded on a worst-case basis. The design approach is described in more detail, with an example calculation, in the next section.

Conversely, the absorption of ammonia is impeded at pH levels above 7. As shown in Table 3.1-1, each unit increase in pH decreases the dissociation of ammonia in the solution by one order of magnitude. Hence, an increase in pH from 7 to 8 will increase the free ammonia in the solution by a factor of 10, thereby also increasing the vapor fraction of the ammonia over the solution by a factor of 10. This is illustrated by the equilibrium curves for ammonia and water shown in Figure 3.1-1.

Since ammonia is expected to be one of the most difficult gases to absorb, ammonia was selected as a reference gas in determining the design and performance criteria of the absorber. The performance of an absorber is generally determined by the number of theoretical gas transfer units, which is the measure of the difficulty of the mass transfer operation. Given a desired removal efficiency, the number of gas transfer units in conjunction with the computed height of a transfer unit can be used to determine the overall packing height. The design calculations for the CWM scrubber are given below:

Pollutant

Type:	Ammonia(l)
Flow Rate to scrubber (acfm)	135
(from the tank system)	

Carrier Gas

Type:	Air
Flow Rate to Scrubber (acfm)	2500

Scrubber Design

Tower Diameter (ID, ft)	5
Gas Flow Rate (acfm)	2500
Liquid Flow Rate (gpm)	350

3.1 Engineering Calculations and Concentrations Used in Designing and Estimating Performance of Packed Tower Scrubber (Absorber)

Absorption is a process in which a soluble gas is transferred from a gas stream into a liquid. The gas may become physically dissolved in the liquid or may react with a dissolved constituent in the liquid. Gas absorption is a diffusional operation which depends on the rate of molecular and eddy diffusion. Ultimately, the transfer must take place across a liquid-gas interface. The interface may be formed by the use of liquid films, gas bubbles, or liquid droplets. A large variety of hardware has been devised to effect gas absorption based on either dispersed liquid or dispersed gas phase. For the CWM facility, a packed tower absorber was selected.

Gaseous solutes which are to be removed by absorption must exhibit solubility in the liquid scrubbing medium. Air contaminants most commonly controlled by absorption include both inorganic and organic compounds such as ammonia, acid gases, sulfur compounds, and light hydrocarbons. For most air pollution applications, water is the most suitable scrubbing medium based on availability, cost, level of corrosiveness, volatility, viscosity, and ease of disposal.

The most desirable gas absorption systems are those in which the dissolved solute exerts negligible partial pressure over the solution (high solubility). A common means of reducing the partial pressure of the pollutant is by reaction in the solution. Of the available scrubbing solutions, a caustic slurry, such as sodium hydroxide (NaOH), is the most suitable for acid gases and organic (especially malodorous) compounds. Since the primary species expected in the ventilation stream at the CWM facility include acid gases and organic hydrocarbons, a caustic slurry was selected as the most suitable medium. These compounds are readily oxidized and removed in a mild caustic slurry controlled to a pH level between 8 and 9.

TABLE 3.1-1

Effect of pH on the Absorption
on Ammonia at 25°C

pH	x_B / NH_3
7	178.8
8	18.8
9	2.79
10	1.179
11	1.018
12	1.002

Where

x_B = total ammonia in solution

NH_3 = free ammonia in solution

Design Criteria (1)

Inlet Concentration = $135/2500 = 0.054$ moles NH_3 /mole gas

Outlet Concentration = $0.1 (0.054) = 0.0054$ moles NH_3 /mole gas

Removal Efficiency = 90%

Inlet liquor Concentration = 0.0005 mole NH_3 /mole liquor

	<u>(lb/hr)</u>	<u>(moles/hr)</u>
Inlet Gas (Bottom)	11,290	398.2
Outlet Gas (Top)	10,985	378.8
Inlet Liquor (Top)	174,300	9,683.3
Outlet Liquor (Bottom)	175,694	9,760.8

- (1) Assumes vent flow from tank contains 100% ammonia; maximum tank vent rate = 500 gpm; ammonia evolution rate = 500 gpm; 1000 gpm = 135 acfm.

Height of a Transfer Unit

$$H_G = \frac{G^2}{L^2} \left(\frac{\mu_G}{\rho_G D_G} \right)^{0.5}$$

where

H_G = height of a gas transfer unit, ft

G = superficial gas rate, lb/hr-ft²

L = superficial liquid rate, lb/hr-ft²

σ = a packing constant

β = a packing constant

γ = a packing constant

μ_G = gas viscosity, lb/hr-ft

ρ_G = gas density, lb/ft³

D_G = gas diffusivity, ft²/hr.

The group $\left(\frac{\mu_G}{\rho_G D_G} \right)$ is known as the Schmidt number

Conversely, transfer unit height was determined from Figure 18-80, Chemical Engineer's Handbook, Perry & Chilton.

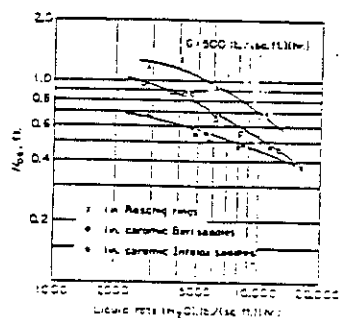


Fig. 18-40. Comparative absorption data in terms of Raschig rings. See caption and introduction to system NH_3 -water- CO_2 in Vol. III, Perry, University of New Virginia, 1957.

Number of Transfer Units

$$NTU = \frac{\log \left[\frac{Y_1 - mX_1}{Y_2 - mX_1} \left(1 - \frac{1}{A} \right) + \frac{1}{A} \right]}{\log A}$$

Where: Y_1 = inlet gas concentration (mole/mole)
 Y_2 = outlet gas concentration (mole/mole)
 X_1 = inlet liquor concentration (mole/mole)
 m = slope of equilibrium curve (See Figure 1)
 A = L/mG
 L = liquor rate (moles/hr)
 G = gas flow rate (moles/hr)

$$\frac{Y_1 - mX_1}{Y_2 - mX_1} = \frac{0.054 - 10(0.0005)}{0.0054 - 10(0.0005)} = 122.5$$

$$A_{TOP} = 9683.3/10(378.8) = 2.56$$

$$A_{BOTTOM} = 9760.8/10(398.2) = 2.45$$

$$A = [(2.56)(2.45)]^{0.5} = 2.50$$

$$NTU = \frac{\log \left[122.5 \left(1 - \frac{1}{2.50} \right) + \frac{1}{2.50} \right]}{\log 2.50}$$

NTU = 2.77 transfer units required for 90% ammonia removal

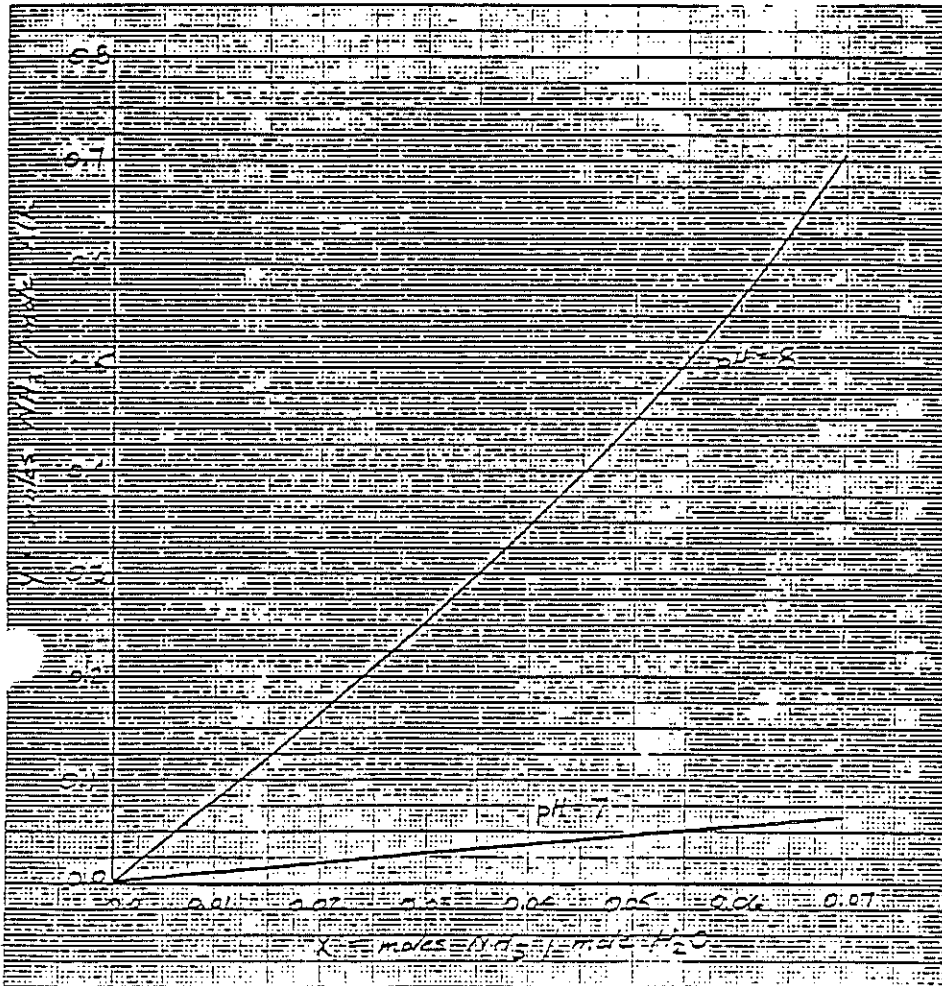


Packing Height

Hence, for 90% removal of ammonia, 4.70 transfer units, each with a height of 0.5 ft., are required. This results in a total packing height of 2.4 feet. To ensure high removal efficiencies of ammonia and other gas constituents, a packing height of 9 feet was specified for the CWM scrubber.

Figure 1

Equilibrium Curves for Ammonia -
Water System at 70°F



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3.2 Quantitative Gas-Phase Analysis

Because of construction schedule constraints, limited analytical characterization data were available for the scrubber design. Key data available were: (1) volatile components of the primary raw odorous waste (NW 2079) and Pond 12 acid; (2) organic gas phase composition for the primary raw odorous wastes; and (3) organic gas phase composition for the treated waste. These data were from bench-scale process development studies, and are summarized in this section.

A total of 13 volatile organics were detected (at greater than 0.1 mg/l) in the two NW 2079 waste samples, while four were detected in the Pond 12 acid, as shown in Table 3.2-1. The NW 2079 sample dated 9/19/83 contained the highest levels of extractable volatile organics. The primary volatile species associated with this waste included chloromethane (371 mg/l), methylpropanol (112 mg/l), methylene chloride (58 mg/l), methyl propane (24 mg/l) and acetone (23 mg/l). Methylene chloride and methyl ether were the only compounds present at significant levels in both the waste and pond samples. It should be noted that the methylene chloride concentration being reported for the filtered sample in Table 3.2-1 may be due to the use of methylene chloride as a filter wetting agent.

The procedure used to identify the extractable volatile organics did not provide quantification of the low molecular weight organics, such as alcohols, and therefore a direct injection gas chromatography (GC) procedure was used to measure these organics. The low molecular weight organics observed from this testing are shown in Table 3.2-2. None of the four compounds measured could be matched with the alcohol standards previously calibrated for the GC, and therefore an approximate range of the molecular weight for each compound has been provided in the table.

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TABLE 3.2-1

EXTRACTABLE VOLATILE ORGANICS, ppm(a)

Compound	Filtered(b) NW 2079	NW 2079 Waste(9/8/83)	NW 2079 Waste(9/19/83)	Filtered(b) Pond 12
	Waste(9/8/83)			Acid(9/8/83)
Chloromethane	6.8	-(c)	371	-
Methylene Chloride	13(d)	12	58	18(d)
Acetone	8.1	8.2	23	-
Bromochloromethane	0.24	-	-	-
Methylpropanal	-	-	112	-
Butanol	0.15	-	-	-
Thiobismethane	0.85	-	-	-
Methyl Ether	-	15	-	2.0
Pentane	-	-	-	0.75
Chlorobenzene	-	-	-	8.1
Methyl Propane	-	6.6	24	-
4-Methyl-2-Pentanone	-	1.6	-	-
Phenol	-	0.3	2.0	-
Unknown, Mass 41	-	-	2.9	-
Hexamethylcyclo- trisiloxane	-	-	13	-

Notes:

- (a) Methanol used for extraction.
- (b) Samples filtered with 0.5 micron filter prior to analysis.
- (c) "-" indicates not detected (< 0.1ppm).
- (d) Cross contamination possible from using methylene chloride as a filter wetting agent.

TABLE 3.2-2

LOW MOLECULAR WEIGHT ORGANIC DETERMINATIONS BY GC ANALYSES

Compound	Molecular Weight Range	Concentration, ppm		
		NW 2079 Waste (9/8/83)	NW 2079 Waste (9/19/83)	Pond 12 Acid (9/8/83)
Unknown, Mass 1	25-30	1,500	8,000	32
Unknown, Mass 2	25-32	1,000	4,000	19
Unknown, Mass 3	32-46	2,400	11,000	63
Unknown, Mass 4	68-75	3,100	8,500	100-500

Tests were performed to assess the quantity of volatile organics released into nitrogen gas, in order to identify the gas composition that may be anticipated while the wastes are held in tank storage. In these tests, gas phase volatile organics were determined for each waste by adding a measured volume of liquid to a sealed bottle containing approximately the same volume of nitrogen gas (after nitrogen displacement). The bottle was then agitated for a period of 24 hours after which time the resulting gas mixture was analyzed for volatile organics by GC/MS. The concentration levels detected in the gas phase are presented in Table 3.2-3.

Volatile organic analyses of gases evolved from the blending of NW 2079 waste and Pond 12 acid were determined for the 1:1 and 5:1 mixtures and are reported in Tables 3.2-4 and 3.2-5., respectively. These measurements were made using the same procedure outlined before (24 hour shake test under nitrogen conditions). As noted in the tables, a large number of volatile organics could not be quantified or were present at low concentration as a result of dilution with the nitrogen gas. Also, since the samples had been filtered prior to gas testing some volatile organics may have been lost. Therefore a second test was set up to directly determine the gas species released during mixing using 1:1 ratio blend under closed conditions. The results of this test are presented in Table 3.2-6.

The rate of gas production for the 1:1, 2:1, 3:1 and 4:1 ratio blends (i.e., ratio of NW 2079 to Pond 12 acid by volume) have been estimated by using closed system liquid displacement techniques. Plots of the results are shown in Figure 3.2-1. As seen by these plots, approximately 25 cc of gas per liter of liquid are released in the first five minutes after mixing, after which time the rate of gas production decreases by over 50%. The treatment system is currently designed to operate at a volumetric ratio of 2:1 (NW 2079 waste to Pond 12 acid).

In summary, the data presented herein are based on experiments focused on the treatment of one waste. They do, however, indicate the complexity and variability of the gas phase composition.

VOLATILE ORGANICS DETECTED IN AN EQUAL PORTION OF
NITROGEN GAS AFTER 24 HOURS

Compound	Concentration, ug/cc	
	NW 2079 Waste(9/8/83)	Pond 12 Acid(9/8/83)
Methylene Chloride	1.3 - 5.0	0.8 - 3.1
Acetone	0.2 - 0.6	0.2 - 0.7
Diethyl Ether	0.06 - 0.3	0.09 - 0.4
Chlorobenzene	0.02 - 0.09	0.02 - 0.04

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TABLE 3.2-4

NITROGEN GAS HEADSPACE VOLATILE ORGANICS BY
GC/MS FOR A 1:1 MIXTURE OF NW 2079
WASTE TO POND 12 ACID^(1,2)
(9/14-15/83)

Compound	Concentration, ug/cc		
	T=0	T=1 hour	T= 1 day
Methylene Chloride ⁽³⁾	13-53	5-18	13-52
Methyl Ether	<0.02	0.2-0.6	<0.02
Chlorobenzene	<0.02	0.1-0.5	<0.02
Difluorodimethylsilane	13-51	8.8-35	6.3-25
Unknown, Mass 93	<0.02	0.1-0.4	<0.02
Unknown, Mass 155	7.0-27	10-42	2.2-8.7
Methylester Acetic Acid	0.3-1.0	1.0-4.0	0.1-0.5
Trimethylsilane	<0.02	0.7-2.7	<0.02

Notes:

- (1) Samples filtered prior to gas analyses testing.
- (2) Gas determinations were made using head space gas above samples under closed conditions.
- (3) Possible contamination from using methylene chloride as a filter wetting agent.

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TABLE 3-2-5

NITROGEN GAS HEADSPACE VOLATILE ORGANICS BY
GC/MS FOR A 5:1 MIXTURE OF NW 2079
WASTE TO POND 12 ACID^(1,2)
(9/14-15/83)

Compound	Concentration, ug/cc		
	T=0	T=1 hour	T= 1 day
Methylene Chloride ⁽³⁾	14-55	4.6-18	14-55
Methyl Propane	0.1-0.3	0.1-0.4	< 0.02
Phenol	< 0.02	< 0.02	0.1-0.6
Unknown, Mass 155	< 0.02	< 0.02	0.03-0.1
4-Methyl-2-Pentanone	< 0.02	0.07-0.3	< 0.02
Hexamethylcyclo- trisiloxane	0.4-1.5	0.4-1.8	< 0.02

Notes:

- (1) Samples filtered prior to gas analysis testing.
- (2) Gas determinations were made using head space gas above samples under closed conditions.
- (3) Possible contamination from using methylene chloride as a filter wetting agent.

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TABLE 3.2-6

GAS PHASE VOLATILE ORGANICS BY
GC/MS FOR A 1:1 MIXTURE OF NW 2079
WASTE TO POND 12 ACID⁽¹⁾
(9/28/83)

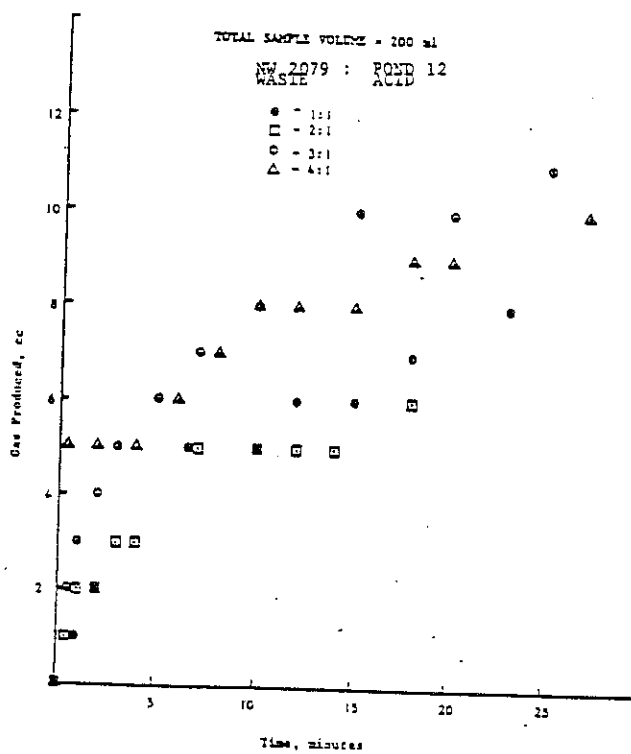
Compound	Concentration, ug/cc	
	T=0(2)	T=1 hour
Chloromethane	0.5-1.1	0.02-0.08
Methylene Chloride	0.3-1.2	0.1-0.6
Methyl Ether	0.4-1.8	0.6-2.5
Chlorobenzene	0.6-2.3	0.04-0.1
Methyl Propane	0.4-1.4	<0.02
Phenol	0.2-0.9	0.01-0.04
Diffuorodimethylsilane	6-25	11-46
Unknown, Mass 93	0.3-1.2	0.9-3.5
Unknown, Mass 155	2.6-11	2.7-11

Notes:

- (1) Gas sample obtained under closed conditions.
- (2) Excess gas evacuated after T=0 sample collected.

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FIGURE 3.2-1 : Gas Generation Rates for NW 2079
Waste (9/8/83) and Pond 12
Acid Mixtures



INVENTORY DEPLETION DETERMINATION

Monthly inventory depletion is determined by the formula

$$D = 1.5W - R - P$$

where:

D = Inventory depleted for the month in millions of gallons

W = The sum of the fractions of the month each well is in full operation

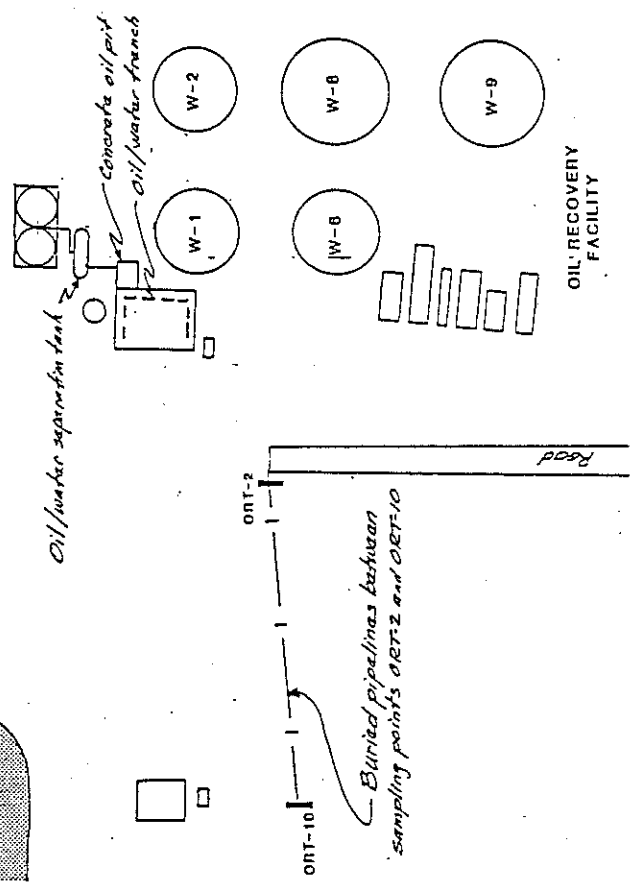
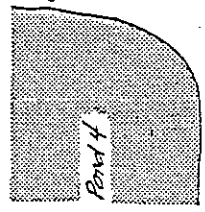
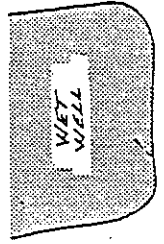
R = Waste receipts plus truck wash water volume for the month in millions of gallons (not to exceed 54 million gallons in any 12 month period)

$$P = i(a+b+c+d+e+f+g)$$

where:

i = precipitation in inches for the month and where a, b, c, d, e, f, and g are factors for the following areas from which precipitation is disposed of through the injection wells for the month as follows:

<u>AREA</u>	<u>FACTOR</u>
Surface Water Management Plan Area	a=1.20
Pond 4	b= .05
Pond 5	c= .05
Pond 7	d= .05
Pond 11	e= .15
Pond 12	f= .15
Stockpile	g= .15



Notes:
Contaminated soil and burns adjacent to facilities shown are included as Miscellaneous Facilities.

ATTACHMENT E
CAN VICKERY AND FACILITY
MISCELLANEOUS FACILITIES
LOCATION PLAN
Golder Associates
FIGURE

0 50 100
APPROX. SCALE IN FEET

SCALE Graphic
DATE 4/30/04



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JUL 03 1995

REPLY TO THE ATTENTION OF:
R-19J

FACSIMILE AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Grieg R. Siedor
Senior Counsel
Chemical Waste Management, Inc.
3003 Butterfield Road
Oak Brook, IL 60521

Dear Mr. Siedor:

The purpose of this letter is to respond to your letter of April 5, 1995, requesting the termination of certain paragraphs of the April 5, 1985, Consent Agreement and Final Order (CAFO), Docket Nos. TSCA-V-C-307, RCRA-V-C-000, concerning the Vickery, Ohio facility (U.S. EPA ID No. OHD 020 273 819). The United States Environmental Protection Agency (U.S. EPA) hereby concurs that Chemical Waste Management has completed the requirements of paragraphs B2-6, C, H, I, M, N. Under the terms of the CAFO all paragraphs with the exception of paragraphs A, B-1, D, E, and G are terminated by this action. The U.S. EPA does not concur with the termination of paragraph B-1. Paragraph Q of the CAFO does not specifically provide for the termination of Paragraph B-1.

Please note that the submission of documents and/or the performance of any activities required by the RCRA and TSCA Permits for the facility are not affected by the termination of duplicative requirements in the above-referenced CAFO. If you have any questions in matters related to TSCA, please call Steve Johnson of my staff at (312) 886-1330. If you have any questions in matters related to RCRA, please call Matthew J. Ohl at (312) 886-4442.

Sincerely yours,

for Valdas V. Adamkus
Regional Administrator





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

Instance 6

April 5, 1985

IN RE:

CHEMICAL WASTE MANAGEMENT, INC.
OAK BROOK, ILLINOIS,

Respondent.

)
)
) DOCKET NOS. TSCA-V-C-307
) RCRA-V-C-000
)

) CONSENT AGREEMENT AND FINAL ORDER
)
)

CONSENT AGREEMENT

-Date 7 4/5/85
WHEREAS:

A. The above-captioned civil administrative proceedings were initiated pursuant to Section 16(a) of the Toxic Substances Control Act (TSCA), 15 U.S.C. §2615(a), and Section 3008 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §6928;

B. A Complaint and Notice of Opportunity for Hearing was filed by Complainant William H. Sanders, III, Director, Environmental Services Division, U.S. Environmental Protection Agency ("U.S. EPA") on January 24, 1985, charging that Respondent violated Section 15 of TSCA, 15 U.S.C. §2614, and implementing regulations at 40 C.F.R. Part 761, et seq. In addition, a Complaint and Notice of Opportunity for Hearing was filed by Complainant, Basil G. Constantelos, Director, Waste Management Division, U.S. EPA on April 4, 1985, charging that Respondent violated Section 3005 of RCRA, 42 U.S.C. §6925 and implementing regulations at 40 C.F.R. 261, 262, 265, and 270, et seq. The

CN

Complaints allege that certain violations occurred at Respondent's facility, located at 3956 State Route 412, Vickery, Ohio (the "Facility"). The Facility is an existing hazardous waste management facility, as defined in 40 C.F.R. 260.10.

The alleged violations of TSCA and RCRA at the facility have resulted in no known threat to public health from the Facility. Since becoming aware of such allegations in March of 1983, Respondent has cooperated fully and responsibly with Complainant in taking all appropriate corrective actions.

WHEREFORE, for the purpose of the above-captioned proceedings and without prejudice to any other proceeding:

A. This Consent Agreement and Final Order ("CAFO") of the Regional Administrator is in full and complete settlement of all civil liabilities of Respondent which might have attached as the result of said proceedings under TSCA and RCRA.

B. Other than as set forth in paragraph D below, Respondent neither admits nor denies the factual allegations of the Complaints and Respondent agrees not to contest the jurisdictional allegations contained in the Complaints or the authority of the Regional Administrator to issue this CAFO;

C. For the purposes of this CAFO and its enforcement, Respondent expressly waives its right to request an adjudicatory hearing on the allegations of the Complaints and consents to the assessment of the civil penalties stated in the following Order; and

D. Complainant and Respondent stipulate:

1. That on or about May 22, 1984, Respondent, and the State of Ohio entered into a Consent Decree (the "State Consent Decree"), which was filed in the Court of Common Pleas for Sandusky County, Ohio, without admitting or denying the State of Ohio's allegations, in which Respondent agreed, among other things, to cease the sale of oil products subsequent to entry of the State Consent Decree until it had developed a comprehensive oil management program that was acceptable to the Ohio Environmental Protection Agency ("OEPA") and to decontaminate and close certain surface impoundments and other areas of the facility alleged to be contaminated by polychlorinated biphenyls ("PCBs");

2. That said State Consent Decree requires that PCB-contaminated soils, sludges and other materials be placed into a closure cell to be constructed and operated in compliance with 40 C.F.R. 761.75;

3. That Respondent has, in fact, submitted an application to the Regional Administrator, Region V, for said closure cell pursuant to the State Consent Decree;

4. That Respondent has removed and will remove or decontaminate the buried oil/water separation tank, the concrete pit and oil/water trench, and that portion of a buried pipeline between sampling points identified in Section XVI, paragraph 29, of the State Consent Decree;

5. That Respondent has removed and will remove all sludge with PCBs in concentrations over 500 parts per million ("ppm") and all free oil containing PCBs, and dispose of said material off-site in accordance with 40 C.F.R. Part 761, et seq, as set forth in Section XVI, paragraph 29, of the State Consent Decree.

6. That prior to construction of the closure cell, non-liquid PCB material in concentrations below 500 ppm shall be placed in a temporary stockpile, constructed, covered, located and operated adjacent to Pond 4, as specified in Section XV Schedule for Closure of the State Consent Decree and in accordance with the approval under RCRA by OEPA of Respondent's Closure Plan for Ponds 4, 5, and 7. Such construction and operation are governed solely by the terms of such approval;

Based upon the foregoing stipulations, the parties agree to the following ORDER:

A. Except as provided below, U.S. EPA inspectors shall have full access to all operating areas of the Facility and areas undergoing remedial and/or closure activities during operating hours without delay and without a warrant upon presentation of credentials to company security personnel at the Facility's gate. Except as provided below, full access includes the right to obtain samples (providing a sampling and analysis plan and split samples to Respondent) and to record observations of site conditions, including photographs,

(providing copies to Respondent) without restriction, interference, or prior approval of Respondent's personnel or other agents of the company. Nothing in this paragraph is intended to limit any other lawful rights of access or inspection which U.S. EPA may have with respect to the Facility. Prior to initial access to the Facility, U.S. EPA inspectors shall complete Respondent's safety training briefing, including signing an acknowledgment of the same and will comply with all reasonable safety procedures of Respondent. A representative of Respondent may accompany U.S. EPA inspectors.

B. Within thirty (30) days after this CAFO is signed by the Regional Administrator and filed with the Regional Hearing Clerk (the "effective date of this CAFO"), Respondent shall implement the Inspection Program for PCB-contaminated fixed sludge attached hereto as Attachment A.

1. Respondent agrees to cooperate with U.S. EPA, during inspections conducted to monitor compliance with this CAFO, provided, however, that during such inspections U.S. EPA shall not request or seek to obtain any environmental audit or internal compliance documents which are not required to be maintained by law or regulation and which are prepared pursuant to the environmental management program described and evaluated in paragraph B of the CAFO.

2. If U.S. EPA requests the Audit Report prepared pursuant to subsection 4 of this Paragraph B (the "Audit Report")

and documents prepared in connection with the Audit Report by Respondent's Environmental Management Department after six months following the date of delivery of the audit recommendations described in subsection 3, Respondent shall provide such documents. Any documents prepared by Respondent in connection with the Audit Report, excluding documents prepared by Respondent's lawyers, shall be made available to U.S. EPA in accordance with the above. U.S. EPA agrees that such documents shall not be used to initiate an enforcement action or as direct evidence of a violation, but may be used as evidence of the existence of any violation which may remain uncorrected beyond six months after the delivery of the Audit Report and as evidence of knowledge or duration of a violation, provided, however, that Respondent does not waive any legal rights it may have to object to the admissibility of such evidence. It is intended that documents prepared for Respondent pursuant to paragraph B are not required by law or regulation.

3.a. Within thirty (30) days after the effective date of this CAFO, Respondent shall submit to U.S. EPA the scope of work for the services of a third-party consultant, as well as its proposed consultant, who shall be expert in environmental auditing, auditing environmental management systems and auditing RCRA and TSCA waste management operations. This scope of work and consultant both shall be agreed upon by U.S. EPA and Respondent in writing prior to the consultant commencing the performance of the professional services as more fully set forth herein below.

A.D. Little

The consultant will be retained and the scope of work will be designed to audit waste operation and environmental management systems at the Facility and in the Respondent's corporate Environmental Management Department as they affect RCRA and TSCA compliance at the Vickery Facility.

b. On or before June 30, 1985, Respondent shall submit to U.S. EPA a copy of the audit report prepared by an independent auditor of Respondent's audit of RCRA and TSCA compliance at the Facility completed pursuant to the State Consent Decree.

4. Within one year after agreement upon the scope of work and the consultant, said third-party consultant shall report in writing to Respondent. This report shall:

a. Identify and describe the existing Facility waste management operations. Identify and describe the Respondent's Environmental Management Department environmental management systems, policies and prevailing practices as they affect RCRA and TSCA compliance at the Facility to the extent that they are different from such systems, policies and practices as they affect RCRA and TSCA compliance at Respondent's Emelle, Alabama facility.

b. Evaluate such operations, systems, practices and policies and identify and describe fully the perceived strengths and weaknesses in such operations, systems, practices and policies, to the extent practicable, regarding their ability to

promote compliance with applicable RCRA and TSCA requirements, to the extent that they are different from such systems, policies, and practices as they affect RCRA and TSCA compliance at Respondent's Emelle, Alabama facility. The consultant shall apply its expertise and judgment to the foregoing data base, utilizing such factors as the consultant believes to be relevant and appropriate (which factors shall be stated in the report).

c. Based on the evaluation required in paragraph B.4.a. and b. above, the consultant shall identify and describe fully, with supporting rationales, the perceived areas, if any, where Respondent's waste management operations and environmental management systems, practices and policies may be improved as they affect the Facility regarding RCRA and TSCA compliance obligations, listing specific options for any improvements at The Facility in the following specific areas:

(1) compliance and waste management operation, staffing, education and experience requirements;

(2) compliance management budget, lines of authority, Respondent's corporate Environmental Management Department and relationship to the operating facility manager;

(3) personnel training for individual employees, compliance obligations and emergency spill response;

(4) Operations and Maintenance ("O&M") procedures for pollution prevention and waste management equipment;

(5) preparation of self-monitoring reports required to be filed with the State and U.S. EPA;

(6) evaluation of waste management operations and pollution prevention equipment in terms of adequacy of design and compatibility with wastes being passed through said equipment;

(7) preparation of Quality Assurance and Quality Control programs for sampling and analysis and for environmental testing procedures, including Facility laboratories and contract laboratories for the Facility;

(8) preparation and review of Incident Reports with specific recommendations for corrective steps and preventive O&M, along with reporting procedures for these recommendations to corporate headquarters.

5. Respondent shall notify U.S. EPA upon receipt of such report, and within ninety (90) days after receipt of a final report, Respondent shall submit to U.S. EPA that portion of the report containing all of the recommendations of the consultant, together with Respondent's evaluation of each option it has selected for adoption and the reasons for rejecting other options. The report by Respondent shall set forth the specific actions the company shall take and a schedule for implementation of the recommendations adopted by Respondent.

6. All documents submitted to U.S. EPA pursuant to paragraph B are considered to be "voluntarily submitted information" as defined in 40 CFR §2.201(i) and will be treated as confidential to the extent authorized by law including such protection as is allowed by TSCA and RCRA.

C. On or before July 1 of each calendar year, Respondent shall submit to U.S. EPA a copy of its annual PCB report for the previous calendar year, prepared pursuant to 40 U.S.C. §761.180. Respondent shall submit to U.S. EPA copies of the monthly reports prepared to document compliance with the remedial requirements of the State Consent Decree, pursuant to paragraph 45 of the State Consent Decree, and shall include in such reports, based on currently existing PCB analytical data, the amounts of materials contaminated with PCBs for the preceding month, chemically fixed and temporarily stockpiled, disposed of in the closure cell referred to in paragraphs D.2. and 3. of the State Consent Decree, or removed from the Facility. For materials contaminated with more than 500 ppm PCB's which have been removed from the Facility, such reports shall indicate the concentrations of PCBs in such materials, based on analyses undertaken by Respondent, and shall identify the destination of any such materials removed from the Facility.

D. Respondent waives all claims that all operating records of the Facility previously submitted by Respondent to U.S. EPA are subject to TSCA Confidential Business Information claims, except for customer lists or documents for which customer lists may be compiled.

E. Respondent waives all claims that records pertaining to the design and operating methodology of pollution control equipment at the Facility previously submitted to U.S. EPA for

issuance of a permit, license or the like are subject to Confidential Business Information claims.

F. To assure that the Facility is properly managed and supervised during emergency events, Respondent shall implement the procedures in Attachment B. The reports prepared and submitted pursuant to paragraphs B.2. and 4. of this CAFO shall address whether such measures are sufficient to provide adequate management and supervision at the Facility during emergency events, and if they are not, shall recommend additional measures to meet that objective.

G. Except as longer periods of compliance are contemplated in this CAFO or in the State Consent Decree or otherwise provided in paragraph H below, Respondent shall immediately, upon the signing of this CAFO, achieve and maintain compliance at the Facility with applicable regulations for hazardous waste treatment facilities, as set forth in 40 C.F.R. Parts 265 and 270. The foregoing shall include, but not be limited to, compliance with 40 C.F.R. 270.72 in the event of proposed creation of new waste piles or the addition of new processes in the treatment, storage or disposal of hazardous waste. U.S. EPA shall promptly process and take final action upon any submissions made by Respondent pursuant to this paragraph. U.S. EPA represents that all civil claims of U.S. EPA under RCRA or TSCA, based on facts or circumstances known to U.S. EPA as of the effective date of this CAFO, are alleged in the Complaints.

H. To meet the requirements of 40 C.F.R. §265.90 to .94, Respondent shall implement an initial groundwater program as set forth in subparagraphs 1-11 hereof (the "Initial Groundwater Program") and shall also implement a continuing groundwater program as set forth in subparagraphs 12 and 13 hereof (the "Continuing Groundwater Program") as follows:

1. Within 60 days after the effective date of this CAFO, Respondent shall perform a waste characterization analysis for the constituents listed in Attachment C on the following samples:

- a. Composite aqueous sample from Ponds 11 and 12;
- b. Composite sludge sample from Pond 4;
- c. Composite sludge sample from Pond 5; and
- d. A sludge sample from Pond 7.

2. Within 30 days after the completion of such waste characterization, Respondent shall submit to U.S. EPA and OEPA a list of the constituents identified in the waste characterization performed pursuant to subparagraph 1 above as well as a list of hazardous waste constituents listed in Attachment C which have previously been detected at the Facility. (The combined list of constituents shall hereinafter be referred to as The "Initial List.")

3. As used herein the term:

- a. "Bedrock Well" means a groundwater monitoring well located in the bedrock aquifer beneath the Facility;

b. "Lacustrine Well" means a groundwater monitoring well located in the saturated zone of the lacustrine geological strata beneath the Facility; and

c. "Till Well" means a groundwater monitoring well located in the saturated zone of the glacial till beneath the Facility.

4. Within 60 days after the effective date of this CAFO, Respondent shall submit to U.S. EPA and OEPA a workplan for the Bedrock, Lacustrine, and Till Wells at the approximate locations shown on Attachments D and E. The workplan shall specify the exact locations and depths for screening of all wells and the manner of construction of all wells. The wells shall utilize standard monitoring well technology and shall be designed and constructed to ensure that groundwater samples come into contact with casings and well screens composed only of stainless steel 316. The entire casings and well screens of the Lacustrine Wells shall be composed of stainless steel (316). Respondent's agreement to the foregoing shall in no way be deemed an admission by Respondent that standard monitoring well technology requires the use of stainless steel construction material.

5. Within 90 days after the approval of such workplan by U.S. EPA and OEPA, Respondent shall install:

a. Bedrock Wells at the approximate locations marked MW14-R and MW19-R to MW24-R on Attachment D;

b. Lacustrine Wells at the approximate locations marked L-14, L-19 to L-23, and L-26 to L-35 on Attachment E; and

c. Till Wells at the approximate locations marked T-14, T-19, T-23, T-24, and T-27 on Attachment E.

6. Within 90 days after excavation of fixed sludge, soil and rip-rap from Ponds 4, 5, and 7 pursuant to the State Consent Decree, Respondent shall install:

a. Bedrock Wells at the approximate locations marked MW-15R and MW-16R on Attachment D; and

b. Lacustrine Wells at the approximate locations marked L-15 and L-16 on Attachment E.

7. Within 90 days after removal of the clay liner beneath the temporary stockpile required in the State Consent Decree for closure of Ponds 4, 5, and 7, and regrading the area as required in the closure plan submitted pursuant to the State Consent Decree for such Ponds, Respondent shall install:

a. Bedrock Wells at approximate locations marked MW-17R and MW-18R on Attachment D;

b. Lacustrine Wells at approximate locations marked L-17, L-18 and L-25 on Attachment E; and

c. Till Wells at the approximate locations marked T-17 and T-18 on Attachment E.

8. After installation of the Bedrock Wells described in subparagraphs 5, 6 and 7 and upon approval of OEPA, Respondent may discontinue use of and grout shut groundwater monitoring wells currently in existence at the Facility.

9. After closure of Ponds 11 and 12, if closed under 40 CFR 264.228(a)(1) or 265.228(a)(1) and upon approval of OEPA, Respondent may discontinue use of and grout shut Bedrock Wells marked MW-21 and MW-22 on Attachment D and Lacustrine Wells marked L-21, L-22, L-29 and L-31 through L-35 on Attachment E. If Respondent closes Ponds 11 and 12 under other standards than 40 CFR 26.228(a) or 265.228(a)(1), this subparagraph does not imply that Respondent may not discontinue use of, and grout shut, such wells if approved by U.S. EPA and/or OEPA.

10. In the event the operation of a new water supply well at the Facility alters the groundwater flow direction, Respondent shall modify the groundwater monitoring system, if necessary, to reflect changes in the groundwater flow direction.

11. Respondent shall perform the Initial Groundwater Program by sampling groundwater

a. from each well identified in subparagraph 5 of this paragraph within 60 days after installation of all of such wells;

b. from each well identified in subparagraph 6 of this paragraph within 60 days after installation of all such wells; and

c. from each well identified in subparagraph 7 of this paragraph within 60 days after installation of all such wells

and by analyzing each such sample for the constituents on the Initial List. Respondent shall submit the results of each set of such analyses and reports based on such analyses as requested by 40 CFR 265.93(d)(5) to U.S. EPA and OEPA within 30 days after receipt by Respondent of final results of all the analyses in that set of analyses.

12. After the completion of the Initial Groundwater Program, Respondent shall conduct the Continuing Groundwater Program by performing groundwater monitoring for each well identified in subparagraphs 5, 6, and 7 of this paragraph on a semi-annual basis by sampling groundwater from each such well and by analyzing each such sample for chlorobenzene, chloroform, methylene chloride, toluene, 1, 1, 1-Trichloroethane, trichloroethylene, benzene, ethylbenzene, chromium, cadmium, arsenic, lead, zinc, pH, specific conductance, and for a further subset of constituents on the Initial List. Such further subset shall be composed of constituents agreed by U.S. EPA, OEPA and Respondent to be or to have been prominently present in the wastes at the Facility and a meaningful indicator of leakage from the Facility. Respondent ~~shall submit the results of each such semi-annual analyses and a report on the same to U.S. EPA and OEPA within 30 days after receipt of all such final semi-annual results by~~ Respondent.

See Nov 3
1990
Consent Dec
for replacement
Language

13. Except as provided below, if Respondent identifies in any sample taken during the Initial Groundwater Program a constituent on the Initial List (excluding the constituents listed by name

in subparagraph 12) in a concentration above the limit of detection, Respondent also shall analyze for each such additional constituent (the "Additional Constituent") during the first semi-annual groundwater monitoring as follows:

a. If the Additional Constituent is found in a Bedrock Well, Respondent shall analyze for it during such monitoring in samples from all monitoring wells. If it is found in any such sample, analyses for it shall continue in samples from all monitoring wells until it is not found in samples from any monitoring during two successive semi-annual monitorings.

b. If The Additional Constituent is found in any Lacustrine or Till Well (the "Target Well"), Respondent shall analyze for said Additional Constituent during the first semi-annual groundwater monitoring in samples from: (i) said Target Well, (ii) the next adjacent well on each side and in the same strata as said Target Well, and (iii) in the next lower well at the location of the Target Well. In the event The Additional Constituent is not detected in the Target Well for two successive semi-annual monitorings, Respondent may discontinue monitoring for said Additional Constituent in all of the wells set forth in the preceding sentence, provided that if said Additional Constituent is detected in any well described in (ii) or (iii) above,

said well shall be considered a new Target Well and Respondent shall sample at the new Target Well in accordance with the preceeding sentence.

c. The requirements for subsequent analyses in this subparagraph shall not apply to an Additional Constituent that Respondent demonstrates was identified because of error in well installation, sampling, laboratory procedure or analytical method. Where appropriate, Respondent shall demonstrate sampling or laboratory error by immediately obtaining additional samples from the affected well(s), split the samples in two and obtain analysis of all additional samples by different laboratories. If Respondent identifies an additional constituent due to an error in well installation, Respondent shall promptly correct said error by installing a new well if necessary.

14. All analyses hereunder shall be done using approved U.S. EPA test methods or their equivalent if approved by U.S. EPA. U.S. EPA shall have the right to review the laboratory procedures of any laboratory used hereunder. Respondent will provide notice of such laboratory, and will cooperate in any such review.

15. Nothing in this Paragraph H shall waive any right of U.S. EPA to take any legal, equitable or administrative action, including, but not limited to, action to require Respondent to perform additional groundwater monitoring based upon the

results of the Initial Groundwater Program or Continuing Groundwater Program pursuant to Section 3013, 3008 or 7003 of RCRA or any other statutory authority.

I. Respondent shall close Ponds 11 and 12 sooner than is required in the State Consent Decree in the following manner:

1. Respondent shall not accept waste from offsite for disposal at the Facility until November 24, 1985 or until the inventory of waste in Ponds 11 and 12 has been reduced to 50 million gallons as determined by field survey, whichever is later. Respondent shall immediately thereafter pump all of such remaining inventory into one of Ponds 11 or 12. Respondent shall not thereafter accept further waste for disposal in the emptied Pond. Disposal into any Injection Wells described in the State Consent Decree shall be in conformity with all requirements of Federal and State law as well as all requirements of the State Consent Decree.

2. Once the inventory of waste in Ponds 11 and 12 has been reduced to 50 million gallons, Respondent shall not increase said inventory over 50 million gallons, and Respondent shall thereafter dedicate at least 50% of the capacity of said Injection Wells to the disposal of the remaining inventory in Pond 11 or 12 as the case may be.

3. The volume of fluids in Ponds 11 and 12 will be determined by field measurement of the pond fluid elevation using standard civil engineering procedures followed by a calculation of the

volume based on the geometric configuration of the ponds, as described in a diagram to be provided by Respondent.

4. Within 90 days after the effective date of this CAFO, Respondent shall submit a closure plan for the emptied Pond to the governmental authority (U. S. EPA or OEPA) having jurisdiction over closure plan approval, with a copy to the other governmental authority. Such plan shall provide for closure of the emptied Pond within one year after the emptying of all liquid from the Pond or the completion of construction of the closure cell required by the State Consent Decree, whichever occurs later. Respondent shall implement such closure plan as approved by such authority, subject to appeal of such approval. The remaining Pond shall be closed in the manner set forth in the State Consent Decree. This subparagraph is not intended to extend the closure date of any Pond beyond the date otherwise provided for in the State Consent Decree.

J. In the event of a material violation of a material requirement of the State Consent Decree, U.S. EPA expressly retains the right to commence enforcement proceedings for penalties provided by RCRA Section 3008 for any violation of RCRA associated with such violations of the State Consent Decree, and Respondent expressly retains the right to contest any such action, including U.S. EPA's jurisdiction to take such action. U.S. EPA may not collect penalties under this paragraph and under paragraph P for the same violation.

K. Notwithstanding any other provision of this CAFO, an enforcement action may be brought pursuant to Section 7003 of RCRA or other statutory provision to abate an imminent and substantial endangerment to human health or the environment. Nothing herein shall be construed to prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of this CAFO in the event Respondent fails to comply with the terms hereof. Nothing herein shall relieve Respondent of either civil or criminal liability for any violation based on facts or circumstances not alleged in the Complaints, including, but not limited to, liability under applicable Underground Injection Control regulations, and, without limitation on the foregoing, nothing herein shall limit U.S. EPA from taking further enforcement action to abate any groundwater contamination attributable to the Facility. Provided that, in consideration of Respondent's consent to this CAFO, Complainant hereby covenants not to initiate or maintain any civil claim or civil cause of action under RCRA or TSCA against Respondent, its parent, subsidiaries, or present or former employees thereof, with respect to the Facility based on facts or circumstances known by Complainant, its agents, employees or contractors as of the effective date of this CAFO except as otherwise provided herein.

L. All documents and plans or other written communications submitted pursuant to this CAFO shall be directed to:

Director
Waste Management Division (5H)
U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604
Attn: James Brossman

Director
Environmental Services Division
U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604
Attn: Karl Bremer

M. In resolution of the violations set forth in the Complaints, and in consideration of Respondent's commitments set forth in the State Consent Decree and the penalties assessed therein, and the agreement of Respondent to the CAFO, including the environmental audit, groundwater monitoring, and restrictions on receipt of wastes, and in consideration of the responsible manner in which the Respondent has cooperated with Complainants since becoming aware of the alleged violations of RCRA and TSCA in March, 1983, and Respondent's commitment to remain in compliance with TSCA and RCRA, Complainants agree to accept a civil penalty in the amount of TWO AND ONE-HALF MILLION DOLLARS (\$2,500,000.00). Payment will be remitted within thirty (30) days after the effective date of this CAFO by sending a cashier's or certified check in the amount of \$2,500,000.00, made payable to the Treasurer of the United States of America, to the U.S. Environmental Protection Agency, Lockbox 70753, Chicago, Illinois 60673. A copy of the check must also be sent to the Regional Hearing Clerk, 5MF-14, U.S. Environmental Protection Agency, Region V, 230 South Dearborn Street, Chicago, Illinois 60604.

N. Failure to remit the civil penalty will result in a referral of this matter to the United States Attorney for the initiation of a collection action.

O. In the event that U.S. EPA believes Respondent has failed to:

- a. Comply with the requirement in Paragraphs H or I;
- b. Submit a PCB status report as required in Paragraph C; or

c. Implement emergency procedures as required in paragraph F; Except for the requirement to submit the PCB status report, U.S. EPA shall notify Respondent of the alleged failure and shall provide Respondent fifteen (15) days in which to remedy the alleged failure.

2. If Respondent has failed to remedy the alleged failure within said fifteen (15) day period and it is not in compliance with this CAFO, Respondent shall pay stipulated penalties from the date of violation as follows:

- a. \$5,000.00 for one-time violation or \$5,000 per week for a continuing violation (but no more than \$5,000 for the first month of such continuing violation) for failure to comply with the requirements of paragraphs H and I.
- b. \$500.00 per day for failure to implement emergency procedures as required in paragraph F; and
- c. \$100.00 per day for failure to submit a PCB status report as required in paragraph C.

3. Excluding Paragraphs G and J, the above stipulated penalties are the exclusive penalties which Complainant may obtain from Respondent for failure to comply with the requirements of this CAFO. Nothing in this subparagraph shall be construed as limiting the ability of Complainant to compel specific performance of this CAFO or to seek injunctive relief to abate a condition which may present an imminent and substantial endangerment.

P. If CWM fails to comply with any performance date or other requirement of this CAFO and such failure is caused by

persons or events beyond the control of Respondent, despite the exercise of all reasonable efforts, such failure shall not be considered a violation of this Agreement. When circumstances are occurring or have occurred which may delay the completion of any requirement of this Agreement, Respondent shall notify U.S. EPA and the state in writing of the reason(s) for and duration or expected duration of such delay, the measures to be taken by Respondent to prevent or minimize the delay and the timetable by which those measures will be implemented. Such notice shall be sent no later than thirty (30) business days excluding Saturdays, Sundays, and holidays following the date Respondent's Environmental Management Department becomes aware of the occurrence. Respondent's Environmental Management Department will be responsible for monitoring the implementation of all aspects of Respondent's performance under this Agreement. Respondent's failure to notify U.S. EPA and the State of the fact of the delay shall constitute a waiver of claims or defenses under this provision. U.S. EPA will notify Respondent no later than thirty (30) business days excluding Saturdays, Sundays, and holidays of its objection of such excuse. Failure of U.S. EPA to notify Respondent of such objection shall constitute a waiver of the Agency's objection to such excuse.

Q. SEE ATTACHED AMENDMENT

R Q. The effectiveness of each paragraph of this CAFO shall terminate as follows:

1. Paragraphs B2-6, I, and N shall terminate individually when the action contemplated by each of them respectively has been completed;
2. Paragraph B (excluding 1-6) and C shall terminate when the closure cell required in the State Consent Decree is enclosed;
3. Paragraph H shall terminate when a RCRA Part B Permit, approved closure plan or combination of the same establish groundwater monitoring requirements (or that ~~that~~ no groundwater monitoring is required) for those portions of the Facility for which groundwater monitoring is specified in Paragraph H hereof.
4. All other paragraphs except Paragraphs A, B-1, D, E and G shall terminate when the last of paragraphs B2-6, I, N, B (excluding 1-6), C and H terminate.

Chemical Waste Management, Inc.
Oak Brook, Illinois

Dated: _____

APR 5, 1985

Dated: _____

William H. Sanders, III
Director
Environmental Services Division
U.S. Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, Illinois 60604

Dated: _____

Basil G. Constantelos
Director
Waste Management Division
U.S. Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, Illinois 60604

It is so ORDERED as agreed to by the parties as stated in
the Consent Agreement.

Dated: _____

Valdas V. Adamkus
Regional Administrator
U.S. Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, Illinois 60604

ATTACHMENT A

The facility inspection plan pursuant to 40 C.F.R. §265.15 will be modified to include inspection of the stockpile of fixed material. As a minimum the following will be included:

- (1) Inspect for evidence of slope instability;
- (2) Inspect for cover integrity when cover is required by the approved closure plan;
- (3) Inspect for integrity of run-on and run-off control features.

Attachment B

2.0 IMPLEMENTATION OF RESPONSE PROCEDURES

In the event of an emergency which results in fire, explosion or accidental materials release, response activities will be initiated immediately, following observation of the event. An assessment of the situation will be performed immediately by the on-duty Emergency Coordinator(s). A logic diagram of initial response activities leading to implementation of the Contingency Plan is shown in Figure 2-1. In the event of an imminent or actual emergency, the person observing the incident will implement the following procedures:

1. Notify the Shift Supervisor or Primary Emergency Coordinator and secure the area.
2. The Shift Supervisor notified will assume responsibility for performing a preliminary assessment of the situation, implementing the necessary control measures and contacting the alternate Emergency Coordinator(s) (as described in Section 2.1). The following information will be provided to the Emergency Coordinator(s):
 - (a) Name of person reporting the incident;
 - (b) Location;
 - (c) Nature and extent of the incident; and
 - (d) Actions taken and/or recommended.
3. The Emergency Coordinator(s) will evaluate the situation using the criteria in Table 2-1 and determine whether the Contingency Plan is to be implemented.
4. If the event is of a minor or controllable nature and presents no potential hazard to human health, the site operations, or the environment, the Emergency Coordinator(s) will insure that control measures and post-emergency (cleanup) procedures are implemented and the necessary reporting is completed. The Contingency Plan is not implemented under these conditions.

If the event poses a threat to human health, the site operations, or the environment, the Emergency Coordinator(s) will implement the Contingency Plan. The Emergency Coordinator(s) will take control of the affected area. He will use any resources necessary until the

emergency has been eliminated and any needed cleanup or restoration is completed.

2.1 NOTIFICATION OF EMERGENCY COORDINATOR(S)

On or before the first of every calendar month, the General Manager will post an on-call schedule for the month. The on-call schedule will identify the Emergency Coordinator(s) who are on duty during the month. There are two Emergency Coordinators on duty at all such times. Emergency Coordinators shall be managers and supervisors at the Facility. The Primary Emergency Coordinator is the Shift Supervisor and the Alternate Emergency Coordinator(s) are Regulatory or Technical Supervisors.

Should an emergency occur, the Shift Supervisor or Primary Emergency Coordinator will reference the on-call schedule and immediately notify the Alternate Emergency Coordinator(s) on duty. The Alternate Emergency Coordinator(s) are responsible for assisting the Shift Supervisor and providing operational, technical and regulatory guidance.

The Emergency Coordinator(s) on duty are accessible by phone and/or paging device and are capable of responding to the site immediately. If the event warrants the appearance of the Alternate Emergency Coordinator at the site after normal working hours, they will inform the Shift Supervisor or Primary Emergency Coordinator of their estimated arrival time and actions to be taken until their arrival. If their arrival time is likely to be greater than 30 minutes, they will direct the caller to contact another designated Alternate Emergency Coordinator and ask them to respond until they can arrive. In the meantime, the Shift Supervisor will continue implementing response procedures without awaiting the arrival of the Alternate Emergency Coordinator.

*Det. [unclear] ?
and [unclear]*

2.2 REPORTING REQUIREMENTS

The following external contacts are made to report an incident:

- (1) National Response Center (800/424-8802)
- (2) Ohio EPA Emergency Response (800/282-9378)
- (3) Ohio EPA - NWDO (419/352-8461)
- (4) * U.S. EPA Region V Office (312/353-2197)
- (5) * U.S. Coast Guard (216/522-3983)

* These agencies must be notified of any release to a waterway.

FIGURE 2-1

RESPONSE ACTIVITIES
CHEMICAL WASTE MANAGEMENT, INC.

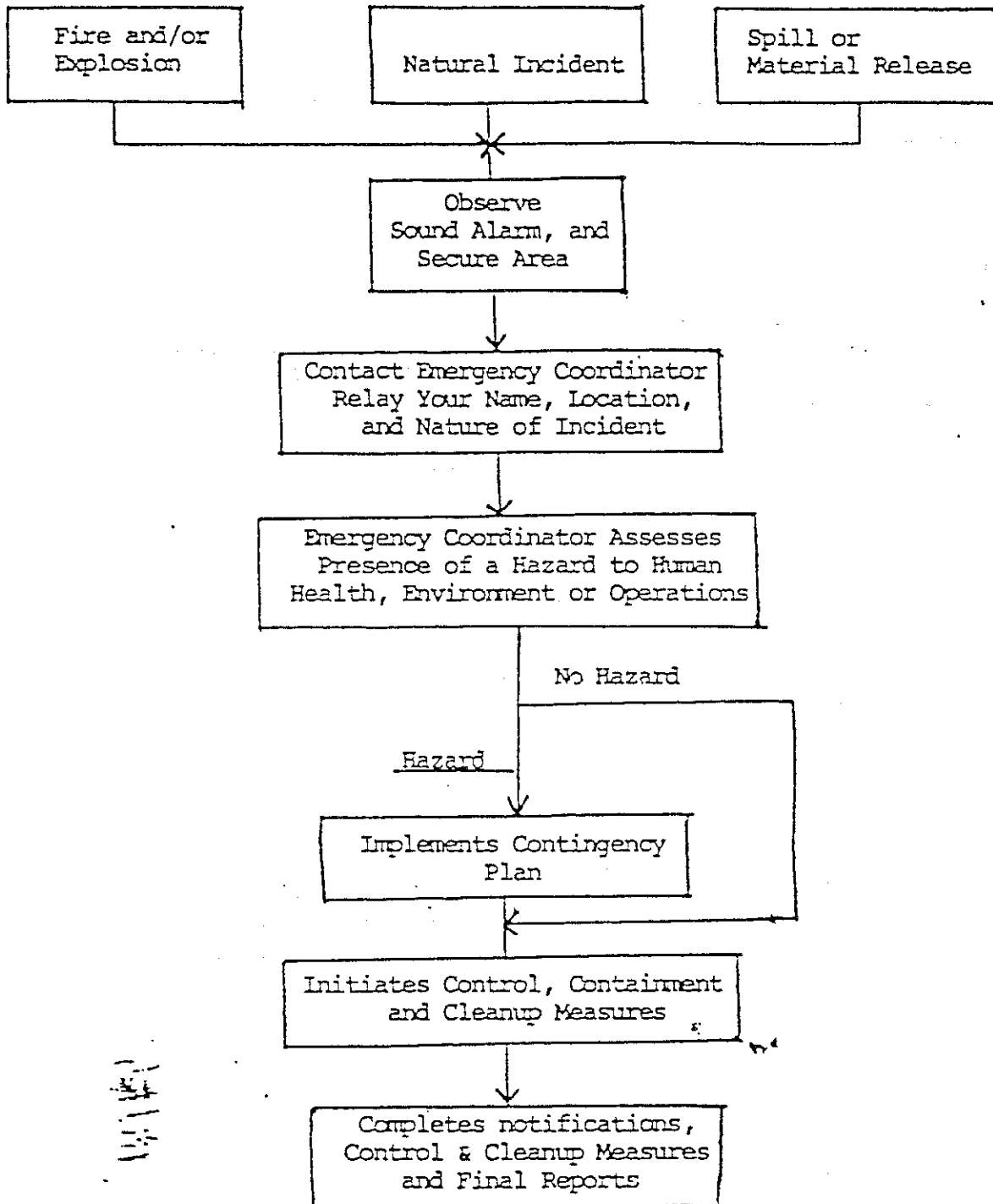


Table 2-1

EVALUATION CRITERIA FOR
IMPLEMENTATION OF CONTINGENCY PLAN

Fire and/or Explosion

- * Fire¹ which may cause the release of toxic fumes.
- * Fire which may spread and could possibly ignite materials at other locations on-site or off-site, or could cause heat induced leaks or explosions.
- * The use of fire suppressants; either chemical or water could result in contaminated runoff.
- * Explosion¹ which has or could:
 - result in danger from flying fragments or shock waves;
 - ignite other hazardous waste at the facility;
 - release toxic materials.

Spills or Material Releases

- * A spill or reaction that results in the release of toxic vapors.
- * A spill that has or could release toxic vapors or significant flammable liquids or vapors, thus representing a fire or gas explosion hazard.
- * A spill outside of a secondary containment unit which could result in off-site soil contamination and/or or surface water contamination.
- * A spill that could endanger human health or the environment for other reasons.
- * Initiation of containment and control procedures.
- * An accounting for all facility personnel/visitors by comparing a head count with sign-in/sign-out forms or other appropriate means.
- * Implementation of internal notification, outside authorities with an assessment of the situation, and requesting assistance as necessary.
- * Coordination of first-aid activities, if casualties are involved, and activation of the casualty control procedures.
- * Evacuation, if required, by activation of the Evacuation Plan.

1. Minor or controllable fires or explosions are to be addressed pursuant to Section 2.0(4) without invoking the entire contingency plan.

ATTACHMENT C

- = PROPOSED ANALYTICAL SCHEME
FOR
APPENDIX VII (SEVEN COMPOUNDS)

Isobutanol
Chloroacetaldehyde
Dichloropropanol
Methanol

Pyridine
Tetrachloroethylene
Methylene Chloride
Trichloroethylene
1,1,1-Trichloroethane
Carbon Tetrachloride
1,1,2-trichloro-1,2,2-trifluoroethane
Trichlorofluoromethane
Chlorobenzene
Toluene
Methyl ethyl ketone
Carbon disulfide
Chloroform
Methyl Chloride
Acrylonitrile
1,2-Dichloroethane
1,1,2-Trichloroethane
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Vinyl Chloride
1,1-Dichloroethylene
Benzene
1,1,2-Trichloropropane
1,2,3-Trichloropropane
1,2,2-Trichloropropane
Bis (chloromethyl) ether
o-dichlorobenzene
o-cresol
m&p cresol

Nitrobenzene
Pentachlorophenol
Phenol
2-Chlorophenol
p-chloro-m-cresol
2,4-Dimethyl phenol
2,4-Dinitrophenol
2,4,5-Trichlorophenol
Bis (2-chloroethyl) ether
2,4,6 trichlorophenol
4 nitrophenol
4,6-dinitro-o-cresol
2,3,5,6-Tetrachlorophenol
2,3,4,6-Tetrachlorophenol
2,3,4,5-Tetrachlorophenol
Chrysene
Naphthalene
Fluoranthene
Benzo (b) Fluoranthene
Benzo (a) pyrene
Indeno (1,2,3-cd) pyrene
Benzo (a) anthracene
Dibenz (a) anthracene
Acenaphthalene
Benzyl Chloride
Hexachlorobenzene
Hexachlorobutadiene
Hexachloroethane
m-Dinitrobenzene
2,4-Dinitrotoluene
2-Picoline
Hexachlorocyclopentadiene
2,4-Dichlorophenol
2,6-Dichlorophenol
Aniline
Diphenylamine
m-dichlorobenzene
p-dichlorobenzene
1,2,4-Trichlorobenzene
1,2,3-Trichlorobenzene
2,4,6-Trichlorobenzene
1,2,3,4-Tetrachlorobenzene
1,2,3,5-Tetrachlorobenzene
1,2,4,5-Tetrachlorobenzene
1,4-Naphthoquinone

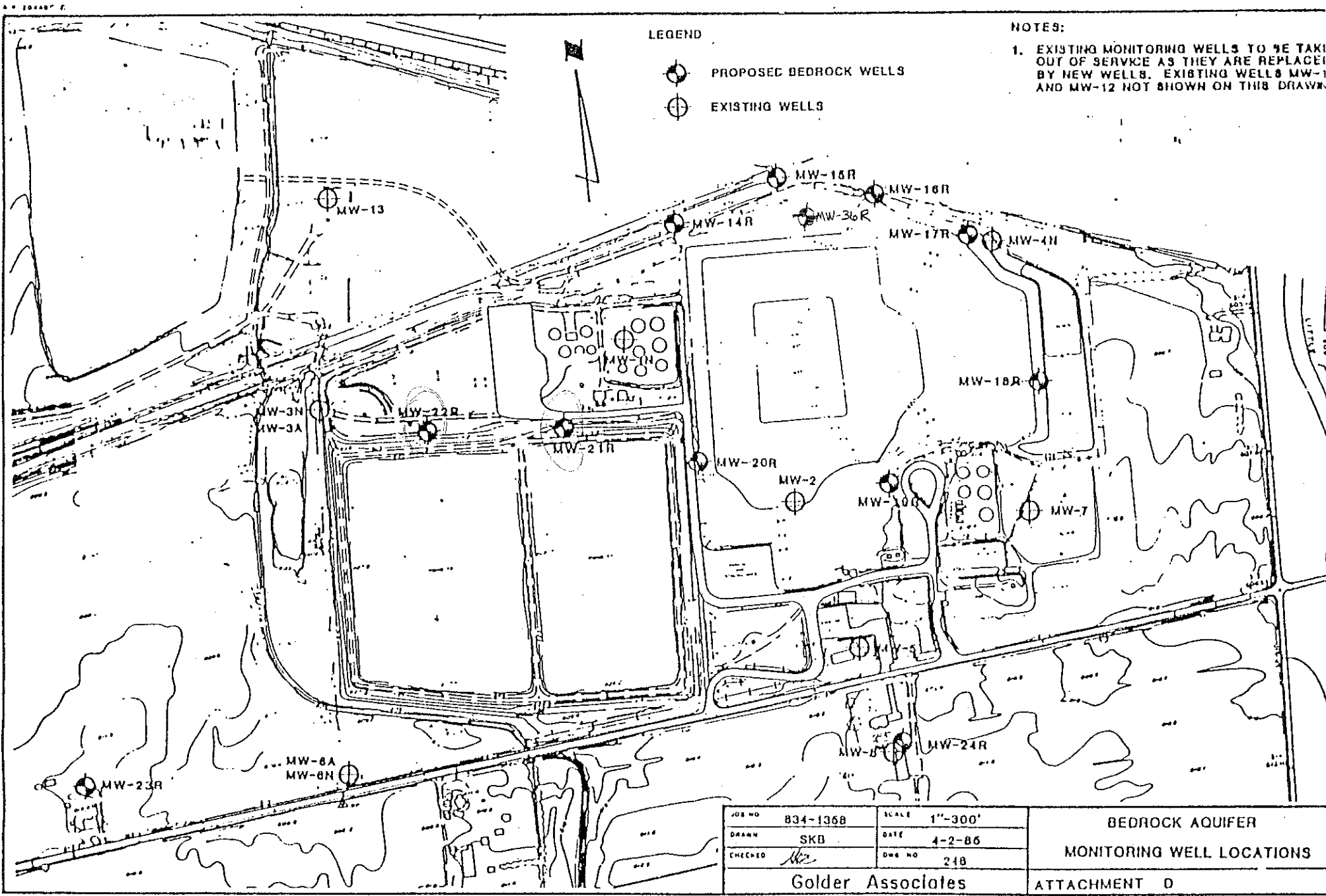
Chlordane
Dieldrin
Toxaphene

Acrylamide
Acetonitrile
2,4 Toluene Diamine
(o,m,p) Phenylenediamine

Cadmium
Hexavalent Chromium
Nickel
Lead
Arsenic
Mercury
Antimony
Chromium

—
Cyanide, Total

20



JOB NO	834-1358	SCALE	1"=300'
DRAWN	SKB	DATE	4-2-86
CHECKED	<i>MR</i>	DWG NO	248

Golder Associates

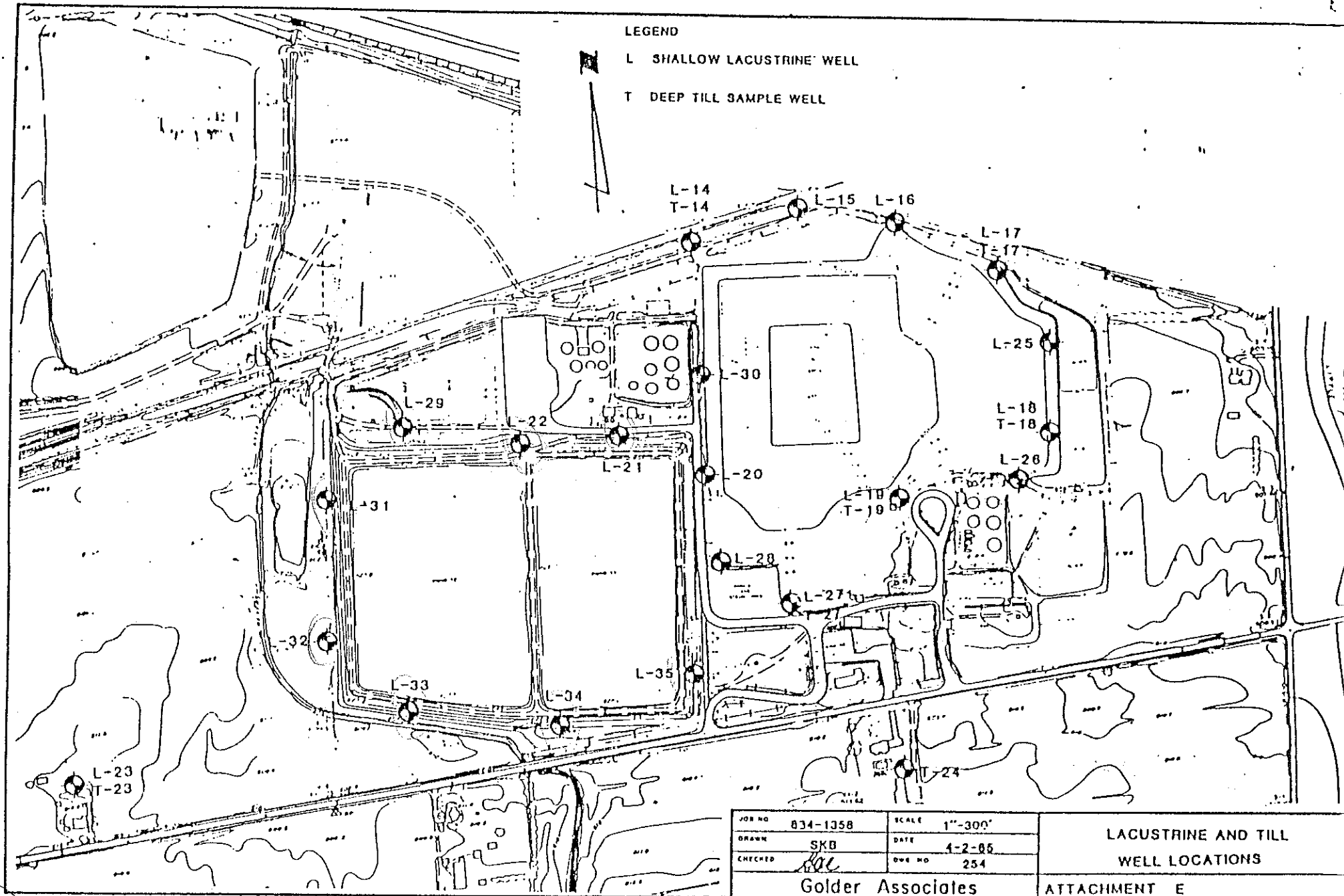
BEDROCK AQUIFER
MONITORING WELL LOCATIONS
ATTACHMENT D

Attachment D

LEGEND

L SHALLOW LACUSTRINE WELL

T DEEP TILL SAMPLE WELL



JOB NO	834-1358	SCALE	1"=300'
DRAWN	SKB	DATE	4-2-86
CHECKED	ROL	DWG NO	254
Golder Associates			

LACUSTRINE AND TILL
WELL LOCATIONS

ATTACHMENT E

2

Appendix B

March 16, 1998, Memorandum from Elizabeth Cotsworth (Acting Director, Office of Solid Waste) to RCRA Policy Advisors regarding Risk-Based Clean Closure.

March 16, 1998

MEMORANDUM

SUBJECT: Risk-Based Clean Closure

FROM: Elizabeth Cotsworth, Acting Director /signed/
Office of Solid Waste

TO: RCRA Senior Policy Advisors
Regions I - X

The purpose of this memorandum is to provide guidance on risk-based clean closure and to confirm that, under current regulations, RCRA regulated units may be clean closed to protective, risk-based media cleanup levels.

Closure Requirements and Regulations

Closure is the term used to describe taking a RCRA regulated unit out of service. During closure, facility owners/operators must comply with the closure performance standard at 40 CFR 264.111 or 40 CFR 265.111. According to 40 CFR 264.111 and 40 CFR 265.111, closure must be completed in a manner that: (a) minimizes that need for further maintenance; (b) controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to ground or surface waters or to the atmosphere; and, (c) complies with the unit-specific closure requirements of 40 CFR Part 264 or 265. Generally, two types of closure are allowed - closure by removal or decontamination (referred to here as "clean closure") and closure with waste in place.¹

The premise of clean closure is that all hazardous wastes have been removed from a given RCRA regulated unit and any releases at or from the unit have been remediated so that further regulatory control under RCRA Subtitle C is not necessary to protect human health and the environment. As part of meeting the closure performance standard referenced above, for clean closure, facility owners/operators must remove all wastes from the closing unit and remove or

¹ On November 8, 1994 EPA requested comment on an approach that would reduce or eliminate the regulatory distinction between cleanup of releases from closed or closing regulated units and cleanup of releases from non-regulated units under the RCRA corrective action program. 59 FR 55778. If promulgated, this approach would essentially create a third type of closure by allowing some closing units to take advantage of the additional flexibility provided by the corrective action program. The Office of Solid Waste plans to address this issue further in the final post-closure rule.

decontaminate all waste residues, contaminated containment system components, contaminated soils (including ground water and any other environmental media contaminated by releases from the closing unit), and structures and equipment contaminated with hazardous waste and hazardous waste leachate. (See, for example, 40 CFR Sections 264.178, 264.197, 264.228, 264.258 and 264.575 and corresponding interim status closure standards in 40 CFR Part 265.)

EPA's expectation is that, with the exception of landfills and most land treatment units, well designed and well operated RCRA units (i.e., units that comply with the unit-specific minimum technical requirements) will generally be clean closed. Units that are not clean closed remain subject to the requirements for post-closure care, including post-closure permitting.

Reaffirming Risk-Based Clean Closure Standards

Since 1987, EPA has interpreted the regulations governing closure by removal and the term "remove or decontaminate" to require complete removal of all hazardous waste and liners and removal or decontamination of leachate and other materials contaminated with hazardous waste or hazardous constituents to the extent necessary to protect human health and the environment. (52 FR 8704, March 19, 1987.) As the Agency explained in the 1987 notice, this interpretation means that, except for hazardous waste and liners, for clean closure, the regulations do not require one to completely remove all contamination, i.e., to background, at or from a closing unit. Rather, some limited quantity of hazardous constituents might remain in environmental media after clean closure provided they are at concentrations below levels that may pose a risk to human health and the environment. In the 1987 notice, EPA took the position that the amount of hazardous constituents that might remain in environmental media after clean closure should be identified through appropriate application of risk information either by using available constituent-specific limits or factors that had undergone Agency review (e.g., MCLs or health-based limits calculated using a verified reference dose), or, when such limits or factors were not available, by using toxicity information submitted by a facility owner/operator and approved by EPA, or by using background concentrations.

EPA continues to interpret the regulations governing closure by removal and the "remove or decontaminate" standard as described above. In addition, EPA today is providing additional guidance on identifying the amount of hazardous constituents that might remain in environmental media after clean closure.

Since the 1987 notice, EPA and the states have gained considerable experience in making protective, risk-based cleanup decisions under the RCRA corrective action and CERCLA cleanup programs. EPA's position is that the procedures and guidance generally used to develop protective, risk-based media cleanup standards for the RCRA corrective action and CERCLA cleanup programs are also appropriate to define the amount of hazardous constituents that may remain in environmental media after clean closure. In other words, site-specific, risk-based media cleanup levels developed under the RCRA corrective action and CERCLA cleanup programs are appropriate levels at which to define clean closure.

EPA has published numerous documents offering guidance on developing site-specific, risk-based media cleanup levels. As discussed in the May 1, 1996 Advance Notice of Proposed Rulemaking for RCRA corrective action, EPA's goal continues to be to clean up sites in a manner consistent with established, protective, risk-based media cleanup levels (e.g., MCLs and many state cleanup standards) or, when such levels do not exist to clean up to protective, risk-based media cleanup levels developed for the site in question (e.g., through a site-specific risk assessment). Both approaches require a site-specific risk-based decision since established media cleanup levels are appropriate only when all exposure assumptions are consistent with site-specific conditions at the facility in question.

EPA generally considers protective media cleanup standards for human health to mean constituent concentrations that result in the total residual risk from any medium to an individual exposed over a lifetime falling within a range from 10^{-4} to 10^{-6} , with the cumulative carcinogenic risk not to exceed 10^{-4} and a preference for cleanup standards at the more protective end of the risk range. For non-carcinogenic effects, EPA generally interprets protective cleanup standards to mean constituent concentrations that an individual could be exposed to on a daily basis without appreciable risk of deleterious effect during a lifetime; the hazard index generally should not exceed one (1). See, e.g., the National Contingency Plan (55 FR 8666, March 8, 1990) the 1990 Subpart S Proposal (55 FR 30798, July 27, 1990), and the 1996 Subpart S ANPR (61 FR 19432, May 1, 1996). Cleanup to standards that are consistent with these risk-reduction goals (e.g., most Federally promulgated standards such as MCLs and many state cleanup standards) will generally be adequate to satisfy the closure performance standard and the "remove or decontaminate" standard.

In the March 19, 1987 notice, EPA also interpreted the regulations governing closure by removal and the "remove or decontaminate" standard to require consideration of the possibility of cross-media contamination so that, for example, facility owners/operators would have to show that remaining levels of hazardous constituents in soil would not migrate from the soil to air, surface, or ground water in excess of Agency-approved concentrations. EPA reaffirms that interpretation today. In addition, although not emphasized in the 1987 notice, EPA reminds program implementors and facility owners/operators that closures must protect both human health and the environment. During clean closure, ecological concerns may sometimes require more aggressive decontamination than might be necessary strictly to protect human health.

Clarification of Acceptability of Fate and Transport Modeling

In the 1987 Notice, EPA required that demonstrations of compliance with the regulations governing closure by removal and the "remove or decontaminate" standard be conservative in the sense that they eliminate the uncertainties associated with contaminant fate and transport. (50 FR 8707, March 19, 1987.) EPA recently revised its interpretation of the "remove or decontaminate" standard in a memo from Elliott Laws and Steven Herman to RCRA/CERCLA National Policy Managers (September 24, 1996) to allow limited use of fate and transport modeling during closure. This revision was based on the experience EPA has gained using fate

and transport modeling since 1987. Under the new Agency interpretation, fate and transport models may be used to support clean closure determinations by modeling the potential for residual contamination in one medium to migrate to and contaminate other media. For example, under the new interpretation, fate and transport modeling might be used to model the potential for residual contamination in soil to migrate to and contaminate ground water.

Some individuals were confused by EPA's new interpretation. The Agency takes this opportunity to clarify that, when supporting demonstrations of compliance with the "remove or decontaminate" standard, fate and transport modeling is appropriate only for modeling the potential for residual contamination (not waste) to migrate from one medium to another. EPA continues to interpret the closure regulations and the remove or decontaminate standard to require removal of all hazardous waste and liners. As discussed earlier in this memo, following removal of all hazardous waste and liners, media throughout a closing unit and any areas affected by releases from the closing unit must be decontaminated. Decontamination levels must protect human health and the environment and must ensure that remaining levels of hazardous constituents in soil will not migrate from soil and contaminate air, surface, or ground water in excess of Agency-approved concentrations. It is only when identifying the appropriate level of decontamination, by, in part, considering the potential for cross media transfer, that fate and transport modeling may be used.

New Interpretation Regarding Non-Residential Exposure Assumptions

In an effort to promote redevelopment of industrial properties, many states have recently developed programs which allow them to consider reasonably expected future land use during cleanups and, in certain situations, apply non-residential exposure assumptions to development of cleanup standards. These programs primarily provide for continued maintenance of non-residential land use and any necessary additional cleanup should land use change through institutional controls such as deed restrictions.² EPA did not explicitly consider these types of programs when interpreting the closure regulations and the remove or decontaminate standard in the March 1987 notice.

EPA now interprets current closure regulations to allow appropriate use of non-residential exposure assumptions when identifying the amount of decontamination necessary to satisfy the "remove or decontaminate" standard. Using non-residential exposure assumptions to identify the amount of decontamination necessary to satisfy the "remove or decontaminate" standard does not affect any other closure requirement. This means, for clean closure, facility owners/operators must still remove all hazardous wastes and liners. In addition, just like for any other clean closure, a decontamination level based on non-residential exposure assumptions must be achieved throughout the closing unit and any areas affected by releases from the closing unit. It also must ensure that environmental receptors are adequately protected and that no unacceptable

² Some states are also developing systems for ground water classification using the comprehensive state ground water protective plan (CSGWPP) process.

transfer of contamination from one medium to another (e.g., soil to ground water) will occur. Issues associated with protecting environmental receptors and preventing unacceptable cross-media transfer may prohibit approval of clean closure based on non-residential exposure assumptions when such closure might otherwise be appropriate. Moreover, although some additional increment of contamination may be allowed to remain in media through application of non-residential exposure assumptions, as during any other clean closure, owners and operators may not rely on physical barriers (such as fences or slurry walls) to ensure protection of human health and the environment. When a facility is also undergoing RCRA corrective action or another type of site-wide cleanup, non-residential exposure assumptions used during clean closure must be consistent with the exposure assumptions being applied in the corrective action (or other) cleanup.

The Agency emphasizes that non-residential exposure assumptions should not be used unless there is a reasonable degree of confidence that future land use will conform to those assumptions. EPA believes this confidence would typically be based on the existence of long-term controls over land use. For example, in some cases, a local authority may have imposed zoning restrictions. In other cases a land owner may have agreed to convey an easement to another party and the easement may impose limits on how the land owner can use the property. When non-residential exposure assumptions are used, the area covered by the non-residential land use assumptions should be clearly delineated and procedures established to alert future users to the presence of contamination and risks presented and to provide for periodic evaluations of actual land use. EPA is currently developing additional guidance on land use controls and restrictions. When completed, this guidance may be used to implement the policies in this memorandum.

Program implementors and facility owners/operators should be careful to distinguish clean closures based on non-residential exposure assumptions from other clean closures, by, for example, referring to them as "non-residential clean closure" or "closure by removal and decontamination based on non-residential exposure assumptions." Care should especially be taken to ensure that the public is aware of the exposure assumptions which are being applied and the associated land use restrictions which must be maintained in order for the assumptions to remain valid. At a minimum this information should be clearly included in public notices of tentative closure decisions. EPA's current guidance on incorporating considerations of reasonably anticipated future land use in remedial decision making is entitled, "Land Use in the CERCLA Remedy Selection Process" (OSWER Direction No. 9355.7-04, May 25, 1995).

All but a few states are currently authorized to implement the RCRA closure requirements in lieu of EPA; therefore, implementation of this policy will largely be at the discretion of state RCRA program managers. EPA does not view this change in policy to allow appropriate use of non-residential exposure assumptions during clean closures as requiring re-authorization, or re-evaluation, of authorized state programs. If EPA were asked to evaluate an individual clean closure decision made using non-residential exposure assumptions, the Agency would likely consider factors such as: the methods used to identify the reasonably expected

future land use; the amount of community involvement in the land use decision; the probability that the covered property will be actively used (as opposed to abandoned) ; the enforceability of a land use control (with more weight given to programs that have a mechanism in place to review and ensure continued validity of non-residential exposure assumptions); the specific non-residential exposure assumptions which are applied; the potential for trespassers, especially children; and, the range of circumstances under which a state could compel further cleanup if land use were to change.

EPA notes that in situations where, because of a change in land use, additional cleanup is needed after clean closure, EPA would retain authority to take action, under appropriate circumstances, using RCRA Section 7003, CERCLA Section 106, and other authorities. In addition, of course, until clean closed facilities undergo final administrative disposition of a RCRA permit application (i.e., through permit issuance or permit denial) they would remain subject to corrective action under RCRA Section 3008(h).

Additional Information

Reliance on risk-based approaches during clean closure will complement EPA's other ongoing efforts to encourage coordination of cleanup requirements and eliminate duplication of effort. Guidance on coordination of RCRA closure requirements with other cleanup activities was provided in the September 26, 1996 memo on RCRA/CERCLA integration, referenced above.

I encourage you to use risk-based approaches to develop site-specific clean closure requirements and to continue in your efforts to eliminate duplication of effort among cleanup programs. For additional information please contact Elizabeth McManus, of my staff, on (703) 308-8657.

cc CERCLA Senior Policy Advisors
Barry Breen, Office of Site Remediation Enforcement
Eric Schaeffer, Office of Regulatory Enforcement
Barb Simcoe, Association of State and Territorial Solid Waste Management Officials

Appendix C

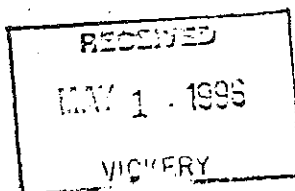
SEC Donohue, Certification Report for the Closure of Ponds 11 and 12, Chemical Waste Management, Inc., Vickery, Ohio.



State of Ohio Environmental Protection Agency

Northwest District Office

North Dunbridge Road
Bowling Green, Ohio 43402
(419) 352-8461 FAX (419) 352-8468



George V. Voinovich
Governor

Re: Chemical Waste Management
Ground Water Monitoring
Sandusky County
OHD 020 273 819

April 30, 1996

Mr. F.G. Nicar
Chemical Waste Management, Inc.
3956 State Route 412
Vickery, Ohio 43464

Dear Mr. Nicar:

The Ohio EPA Division of Drinking and Ground Waters has reviewed Chemical Waste Management, Vickery Facility's Pond 11 and 12 Ground Water Monitoring Results for the three year post clean closure verification. Attached please find Ohio EPA's comments and conclusions pertaining to the Chemical Waste Management (CWM) results.

If you have any questions concerning these comments, please contact George Stuckey of the Northwest District Office Division of Drinking and Ground Waters at (419) 373-3096.

Sincerely,

Mitchell Mathews
Division of Hazardous Waste Management

/llr

Attachments

pc: George Stuckey, DDAGW, NWDO
DHWM-NWDO File



Mitch Matthews, Site Coordinator, DHWM, NWDO
Chemical Waste Management, Inc.
March 22, 1996
Page A1

Comments pertaining to the quarterly ground water sampling results used to verify post clean closure of ponds 11 and 12.

- 1) The review of the twelve quarterly sampling events used to verify post clean closure of ponds 11 and 12 has shown that there were no detections of any volatile organic compounds (VOCs) or polychlorinated biphenyls (PCBs) during any of the sampling events.
- 2) Phenols were detected at the method detection limit (MDL) of 5 micrograms per liter (ug/l) in samples from monitoring well MW-22R (July 1994 sampling event) and monitoring wells L-33 and 34 (October 1995 sampling event). Maximum contaminant levels (MCLs) for drinking water have not been established for phenols (US EPA, 1995).
- 3) Dissolved metals were detected in three monitoring wells on three separate sampling events. They were:

Sampling Event	Monitoring Well	Dissolved Metal	Concentration (ug/l)
April 1993	MW-22R	Lead	888.0
January 1995	L-29	Chromium	16.9
April 1995	L-33	Chromium	11.8

The unusually high concentration of dissolved lead in the April 1993 sample was confirmed by the laboratory doing the analysis. Dissolved lead has not been detected since this event.

The detections of dissolved chromium in the January and April 1995 events are considerably below the established drinking water MCL for chromium of 100 ug/l.

These low concentrations of phenols and dissolved metals do not pose a threat to human health or the environment.

The sampling data verifies, at least according to ground water criteria, that the units may be considered clean closed.

Mitch Matthews, Site Coordinator, DHWM, NWDO
Chemical Waste Management, Inc.
March 22, 1996
Page A2

- 4) Ground water monitoring wells associated with ponds 11 and 12 clean closure may be plugged and abandoned. Well abandonment is stipulated in Appendix I, Phase II of the Closure Plan for Ponds 4, 5 and 7. This should be done according to the procedures outlined in the document entitled Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring (1995). These wells include lacustrine wells L-21, 22, 29, and 31 through 35 and bedrock wells MW-21R and 22R.

It may be in CWM's best interest to keep the bedrock monitoring wells MW-21R and 22R in order to provide more ground water surface elevation data.

References

- Ohio EPA, 1995, Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring, 14 chapters.
- U.S. EPA, 1995, Drinking Water Regulations and Health Advisories

Conclusions

- 1) There were no detections of volatile organic compounds or polychlorinated biphenyls in any samples during any sampling event for this post clean closure verification at ponds 11 and 12.
- 2) Phenols were detected at the method detection limit of 5 micrograms per liter in three ground water samples. The dissolved metals, chromium and lead, were detected in three monitoring wells on three separate occasions. The concentrations of these constituents do not pose a threat to human health or the environment.
- 3) It is the opinion of the DDAGW that the three years of quarterly ground water sampling and analysis has verified the clean closure of ponds 11 and 12.
- 4) Lacustrine zone monitoring wells associated with the clean closure of ponds 11 and 12 should be properly abandoned. The bedrock monitoring wells associated with ponds 11 and 12 closure should remain operational in order to provide continued ground water elevation data.
- 5) The above comments should be addressed by the company.



State of Ohio Environmental Protection Agency

Northwest District Office

47 North Dunbridge Road

P.O. Box 466

Bowling Green, Ohio 43402-0466

(419) 352-8461 FAX (419) 352-8468

George V. Voinovich
Governor

Re: Chemical Waste Management
Hazardous Waste
Sandusky County

August 4, 1993

CERTIFIED MAIL

Mr. Fred Nicar
Chemical Waste Management
3956 State Route 412
Vickery, Ohio 43464

Dear Mr. Nicar:

On December 7, 1993², Chemical Waste Management submitted certification reports for the closure of the former Ponds 4, 5 & 7, and for Ponds 11 & 12. The closure plans for Ponds 4, 5 & 7 were approved on December 27, 1984 and March 20, 1987. The closure plan for Ponds 11 & 12 was approved by Ohio EPA on March 31, 1988. The closure of Ponds 4, 5, & 7 was an in place closure which entailed the placement of stabilized sludge into a secured double synthetic lined cell. Stabilized sludge from Ponds 11 & 12 were also placed into the cell. Ponds 11 & 12 were clean closed and backfilled with compacted soils. Ponds 4, 5 & 7 (i.e. the "closure cell") will be monitored for a post closure period of at least 30 years. Ponds 11 & 12 will not undergo post closure monitoring due to "clean closure".

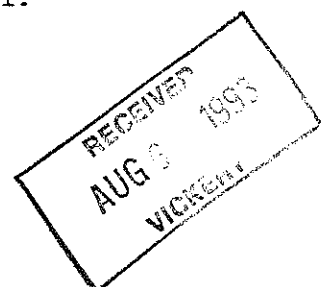
On July 30, 1993, the Ohio EPA conducted a closure certification inspection of the closure cell and the former Ponds 11 & 12. The Agency was also present during all phases of sludge removal and stabilization and cell construction and capping. Based upon our inspections and a review of the certification reports, Chemical Waste Management has closed Ponds 4, 5 & 7 and Ponds 11 & 12 in accordance with the approved plans.

With respect to post closure care of the closure cell, the Agency noted several areas of the cap which are in need of maintenance. These include the following:

The filter cloth at the north base of the cell near the walk-in gate is exposed to the runoff ditch.

Areas of cracking were observed at the base of the east slope. Bare spots were also noted on the east slope.


Cracks are evident at the west hip near the base of the cell.



Mr. Fred Nicar
August 4, 1993
Page Two

Repairs to these areas should be made as soon as possible. Please notify the Agency's on site inspector when such improvements have been made. If you should have any questions in this matter, please contact me at 1-352-8461.

Yours truly,



Jeffery A. Steers, R.S.
RCRA Group Leader
Division of Hazardous Waste Management

/rab

pc: Tom Crepeau, DMS, DHWM, CO
Laurie Stevenson, CM&ES, DHWM, CO
Randy Meyer, TAS, DHWM, CO
Chuck Hull, NWDO
Brent Kuenzli, NWDO



Chemical Waste Management, Inc.

3956 State Route 412
Vickery, Ohio 43464
419/547-7791

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

December 7, 1992

Mr. Donald R. Schregardus, Director (P 628 379 938)
Ohio Environmental Protection Agency
P.O. Box 1049
1800 WaterMark Drive
Columbus, Ohio 43266-0149

Mr. Valdus Adamkus, Administrator (P 628 379 937)
U.S. Environmental Protection Agency
Region V
77 W. Jackson Blvd.
Chicago, IL 60604

RE: Submission of Certification of Closure of
Surface Impoundments (Ponds) 11 and 12
Chemical Waste Management - Vickery, Ohio

Dear Mr. Schregardus:

As required by O.A.C. 3745-66-15, with this letter I certify that Surface Impoundments (Ponds) 11 and 12 and the underlying soils have been closed in accordance with the specifications of the approved ponds 11 and 12 closure plan, as amended. Chemical Waste Management requests that, following review and approval of this certification, the facility be released from the closure financial assurance requirements of O.A.C Rule 3745-66-43(H).

Enclosed is the independent, qualified, registered professional engineer's certification of closure for Ponds 11 and 12 and the underlying soils. This certification is made by Mr. Richard Hoppenjans, P.E., of Bowser-Morner, Toledo, Ohio. Documentation supporting this certification is included in his report.

As this is a clean closure, the requirements of O.A.C. 3745-66-16 do not apply. Therefore, no survey plat is being provided to local zoning or land use jurisdictions.

It should be noted that a copy of the closure plan will be maintained at the above address during the post closure period, and not at Chemical Waste Management, Inc., 3003 Butterfield Road, Oak Brook, IL 60521.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Mr. Donald R. Schregardus, OEPA
Mr. Valdus Adamkus, USEPA
Ohio Environmental Protection Agency
December 7, 1992
Page 2

Should you have any questions regarding this matter, please contact Michael Curry
or Steve Lonneman at 419-547-7791.

Sincerely,

CHEMICAL WASTE MANAGEMENT, INC.



F.G. Nicar
General Manager

FGN/tr

Attachments

cc w/attachments:	Charles Hull, OEPA DHWM NWDO
	Brent Kuenzli, OEPA NWDO
	Douglas Martin, CWM REM
	Michael Curry, CWM
	Agency Correspondence File
cc w/o attachments:	Richard Hoppenjans, Bowser-Morner
	Steve Lonneman, CWM



**BOWSER
MORNER**

COMMITTED TO EXCELLENCE
SINCE 1911

122 S. St. Clair Street
P.O. Box 838
Toledo, OH 43696-0838
419-255-8200
419-255-7935 FAX

December 3, 1992

Ohio Environmental Protection Agency
1800 Water Mark Drive
P.O. Box 1049
Columbus, Ohio 43266-0149

Attention: Mr. Donald R. Schregardus
Director

RE: Certification of Closure
Ponds 11 and 12
Chemical Waste Management
Vickery, Ohio
Job No. 74118

Gentlemen:

The purpose of this letter is to document the final closure of ponds 11 and 12 at the Chemical Waste Management facility in Vickery, Ohio.

Closure of these facilities began in 1984 and was completed in 1992. The closure plan originally developed was modified a number of times throughout this time period in response to review by Ohio and U.S. EPA; in response to changes in the regulations; and in response to site specific conditions. The closure process was documented from the beginning and the resulting reports and data have been formulated into a multi-volume certification document. This certification document has been titled "Certification Report for the Closure of Ponds 11 and 12." This certification report contains a number of appendixes which are generally found in separate volumes.

The construction and testing work which took place on the site was done under the direct supervision of Chemical Waste Management's engineering manager, Mr. Michael F. Curry. Assisting Mr. Curry from the beginning, as an independent engineer, was Mr. William Roorback of Roorback Consulting. Assisting Mr. Roorback and Mr. Curry on specific phases of the work was Bowser-Morner Associates, Inc., and SEC-Donohue, Inc. Contained within the certification documentation attachments are individual certifications by the various professional engineers involved, attesting to the fact that the closure of ponds 11 and 12 was done in substantial accordance with the project plans and specifications and the approved closure plans. Table 1 presents a summary of these certification statements and provides an index as to their location in the certification documents.

As the ponds were cleaned and closed, soil sampling was done to document that the remaining underlying soils were free of hazardous constituents or that the constituents were at low enough levels so as to minimize the threat to human health and the environment when allowed to remain. These results were reviewed by Ohio EPA to determine that the

ANALYTICAL SCIENCES • GEO-ENVIRONMENTAL SERVICES • CONSTRUCTION SERVICES

OTHER LOCATIONS: DAYTON, OH AND LEXINGTON, KY

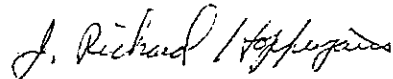
facility met the requirements of the approved closure plans. A letter from Ohio EPA attesting to the adequacy of the soil sampling and analysis is contained within the certification closure documents. Specifically, a letter is contained in Appendix A, Section 5 of the "Certification Report for the Closure of Ponds 11 and 12."

In addition to the work discussed above, groundwater monitoring and groundwater monitoring well installation occurred during the closure period. It is our understanding that documentation of this activity, in accordance with the closure plan, has been previously submitted to Ohio EPA.

Based upon our review of the above-outlined information and relying upon the certifications provided by the various organizations involved in the closure of these facilities, it is our opinion that ponds 11 and 12 were closed in substantial accordance with the approved closure plans, as modified.

Respectfully submitted,

BOWSER-MORNER ASSOCIATES, INC.



J. Richard Hoppenjans, P.E.
Chief District Engineer

JRH:hmr



TABLE 1: LOCATION OF INDIVIDUAL CERTIFICATION STATEMENTS

CLOSURE OF PONDS 11 AND 12

<u>Area Certified</u>	<u>Certifying Engineer</u>	<u>Location of Certification Statement*</u>
Compacted soil cover	J. Richard Hoppenjans (BMA)	Appendix E, pg. 6 and 7
Air monitoring	SEC-Donohue and RTP Environmental Assoc.	Appendix G, pg. 34
Overall closure certification	SEC-Donohue	pg. 15

* "Certification Report for the Closure of Ponds 11 and 12," October 1992, by SEC-Donohue.



**BOWSER
MORNER**

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APPENDIX F	SEC DONOHUE PHOTOGRAPHIC DOCUMENTATION (SEPARATE DOCUMENT)
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Figure 6 Proposed Final Grading Topography	14

1.0 INTRODUCTION

This report constitutes the certification for the closure of Ponds 11 and 12 at the Chemical Waste Management, Inc. (CWM) Vickery, Ohio Facility, in accordance with (1) Paragraph 28(B)(1) of the Consent Decree entered into between the State of Ohio and CWM; (2) Paragraph I of the Consent Agreement and Final Order entered into between USEPA and CWM; (3) 40 CFR 265.228; and (4) OAC 3745-66-12.

SEC Donohue Inc., (SECD), formally Serrine Environmental Consultants, was retained by CWM to serve as the Resident Construction Quality Assurance Engineer (CQAE) during the closure of Ponds 11 and 12. SECD retained Bowser Morner, Inc. (BMI) to serve as the Independent Registered Professional Engineer as required by OAC 3745-66-15 and 40 CFR 265.115. As such, SECD and BMI were to evaluate compliance with the closure specifications in the approved Closure Plan. Figure 1 illustrates the organizational chart.

SECD has prepared a similar certification report for the closure of Ponds 4,5, and 7 at the CWM Vickery, Ohio Facility. These two documents are related due to the fact that both projects were ongoing simultaneously and the fixed sludges and clay removed from Ponds 11 and 12 were transported to and disposed of in the approved Closure Cell constructed upon closed Ponds 4,5, and 7 in accordance with USEPA approval letter dated March 11, 1991.

The liquids in Ponds 11 and 12 were pumped and disposed of in the onsite deepwell injection system. Next, the sludges were fixed (stabilized) using the same fixation method and procedures utilized for Ponds 4, 5, and 7. Finally, the cleaned Ponds 11 and 12 were backfilled with clean clay to the approved grades.

2.0 GENERAL FACILITY INFORMATION

CWM's Vickery Facility is located near Vickery, Ohio at 3956 State Route 412. The U.S. EPA Identification number for the facility is OHD020273819, and the Ohio EPA ID number is 03-72-0191. CWM Vickery operates under a U.S. EPA Part A Permit, a Ohio EPA Part A Permit (HWFAB), four UIC Permits, a NPDES Permit, an Air PTI, Air PTO's, a Surface Water Management PTI, a U.S. EPA CAFO and a Consent Decree with the State of Ohio.

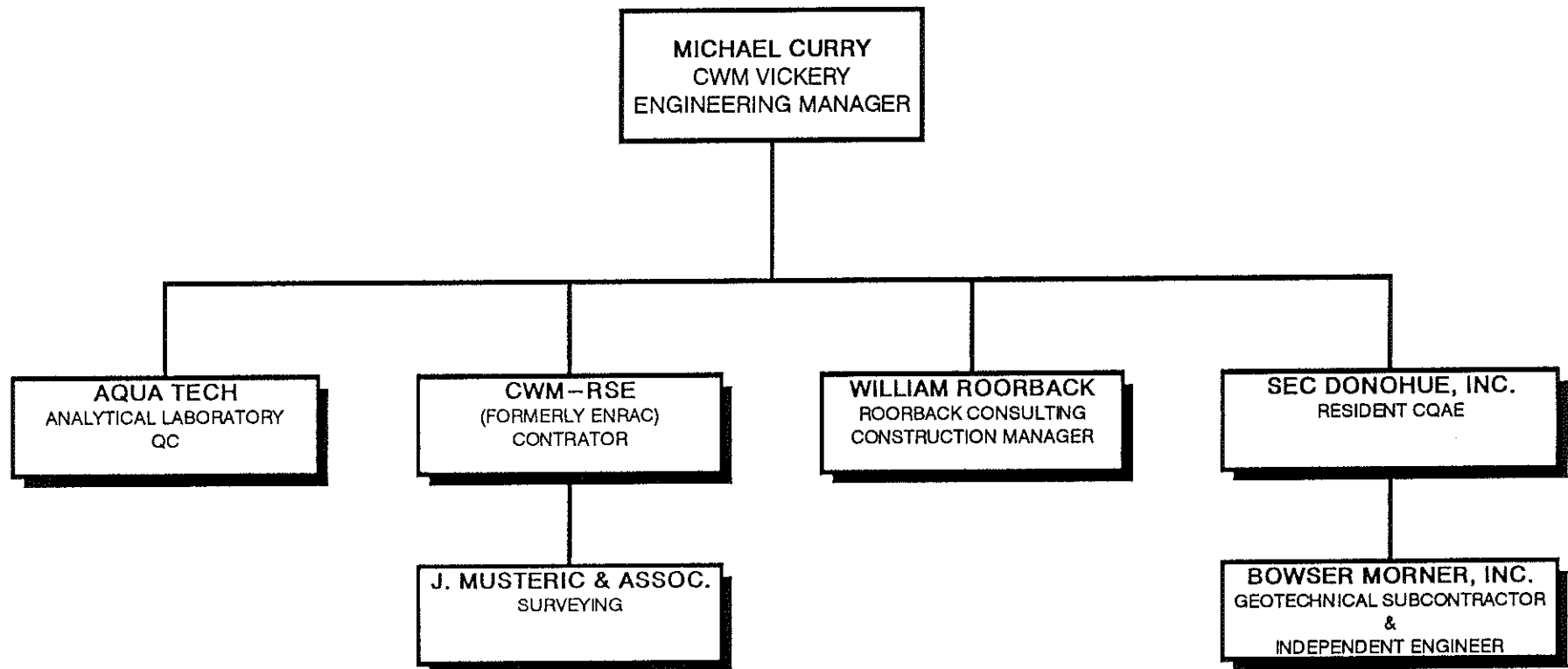
The facility is engaged in the treatment and disposal of selected liquid industrial waste streams by deepwell injection. Four injection wells along with associated equipment for truck unloading, treatment, and filtration of wastes are maintained on-site for the purposes of treatment and ultimate disposal of accepted wastes. CWM plans to expand the existing waste treatment operations to include container (drums, rolloffs, bulk tankers) handling as well as expanded tank storage and treatment facilities.

The facility is owned by Chemical Waste Management Holdings, Inc. and operated by CWM, both partially owned subsidiaries of Waste Management, Inc. The Vickery Facility was purchased in 1978 from Ohio Liquid Disposal (OLD) by CWM. Prior to ownership by OLD,

FIGURE 1

**CHEMICAL WASTE MANAGEMENT, INC.
VICKERY, OHIO FACILITY**

**CLOSURE OF PONDS 11 & 12
PROJECT TEAM**



the company was known as Don's Oil Service and was engaged in the process of reclaiming oil. The facility has been accepting waste and providing ultimate disposal of wastes since the 1960's. A theoretical closure date of 2085 has been chosen for the complete facility. The closure date cited is theoretical for the purposes of closure financial assurance calculations only; the facility could be maintained indefinitely.

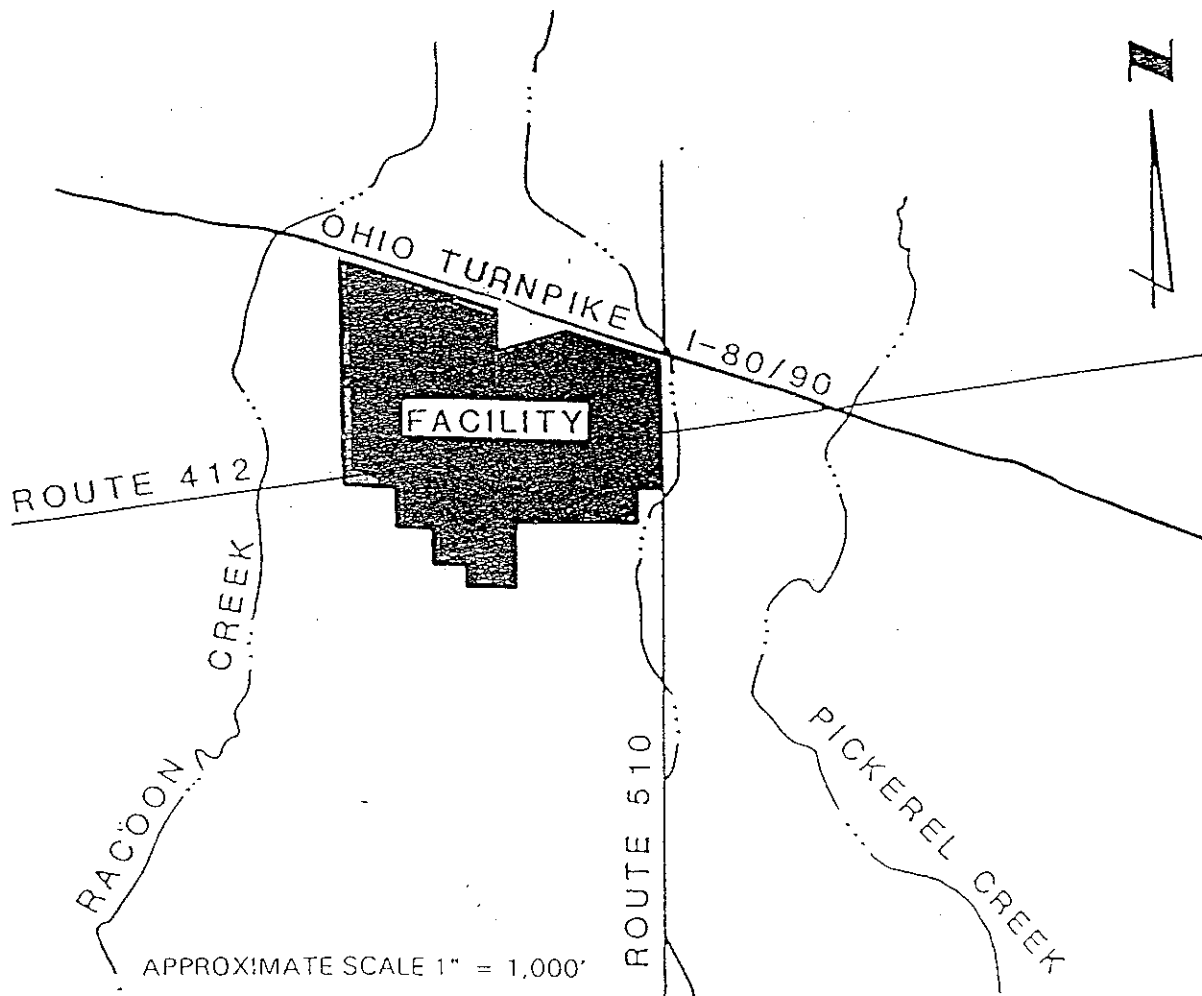
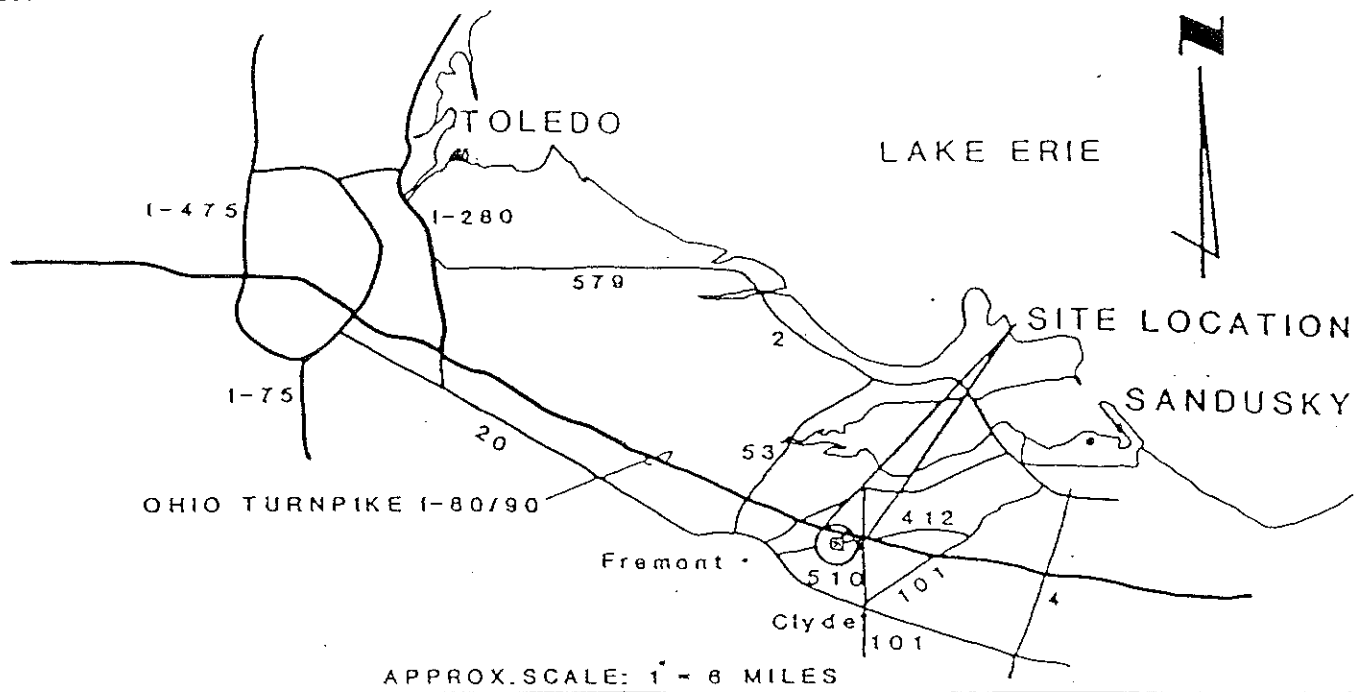
2.1 Facility Description

The Vickery Facility is located in a rural area of Sandusky County, Ohio surrounded primarily by active farmland. A site location plan is shown on Figure 2. The topography of the site is relatively flat, sloping gently to the north. Highways border the site to the south, east, and north. To the west, a portion of the property is bordered by Meyers Ditch while a portion extends further west beyond the creek. Figure 3 contains a general site plan including site topography.

The Vickery community is located two miles northeast, the Town of Clyde is four miles south, and the City of Fremont, Ohio is six miles to the west. The area surrounding the site is drained by Meyers Ditch to the west and Little Racoon Creek to the east (off-site) which join together before discharging to Sandusky Bay five miles north of the site.

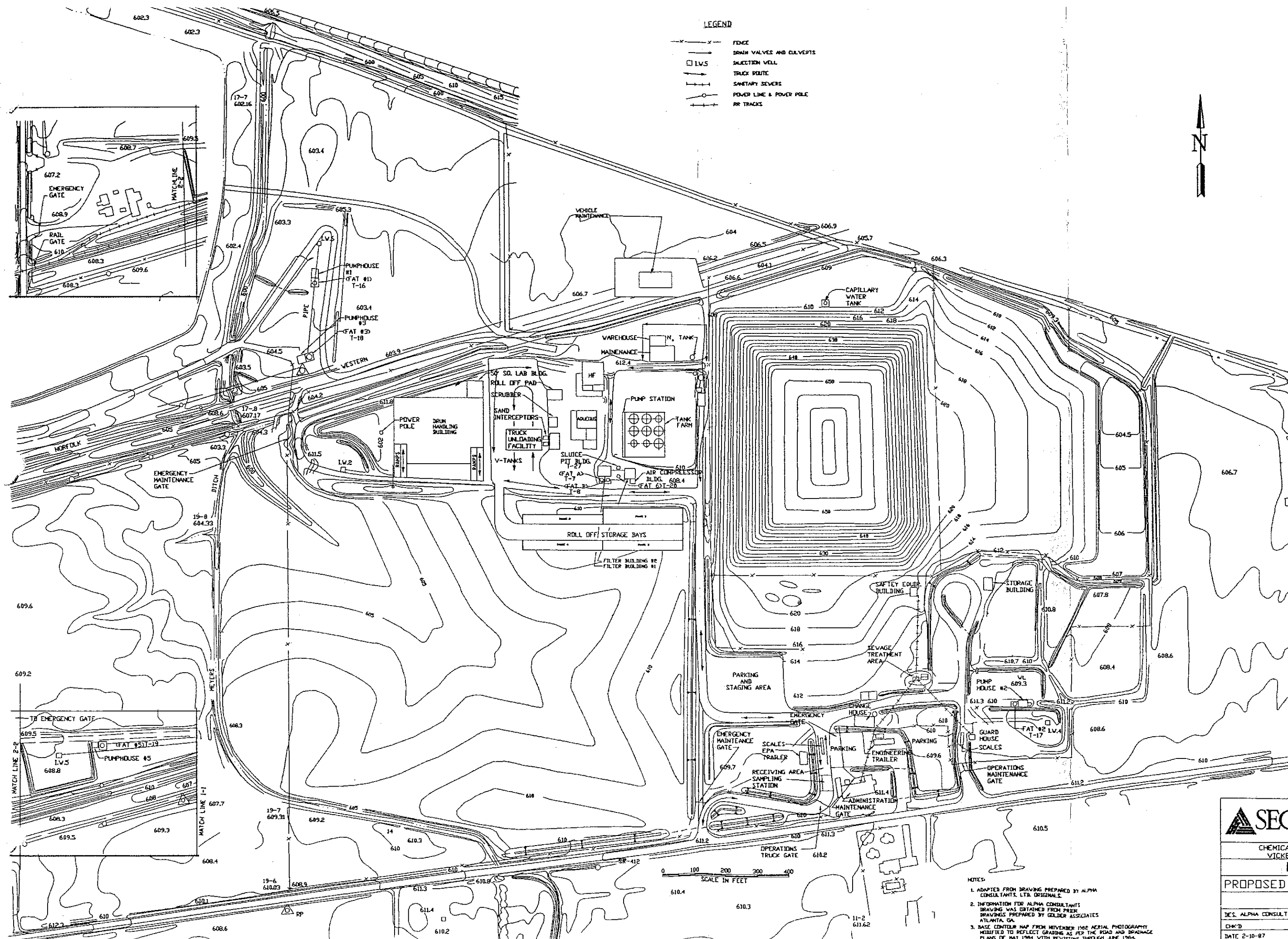
The principle features of the Vickery facility are:

1. The truck unloading operation, which receives all aqueous wastes accepted by the facility and includes four tanks.
2. Six (6) waste storage and treatment tanks which are used to store and treat all wastes received by the facility.
3. Four (4) active injection wells (deepwells), six (6) associated Filtered Acid Tanks, well head facilities, and pump houses used to dispose of all treated aqueous wastes.
4. Filtration systems used to separate solids from the treated waste stream prior to deepwell injection.
5. Various support units, including the truck sampling station, truck scales, laboratory, maintenance and equipment storage building, filter buildings, and administration building.
6. The Closure Cell, which was constructed over the closed Ponds 4, 5, and 7.



 **SEC DONOHUE**
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FIGURE 2
SITE LOCATION PLAN



LEGEND

- FENCE
- DRAW VALVES AND CULVERTS
- INJECTION WELL
- TRUCK ROUTE
- SANITARY SEWERS
- POWER LINE & POWER POLE
- RR TRACKS



0 100 200 300 400
SCALE IN FEET

- NOTES:
1. ADAPTED FROM DRAWING PREPARED BY ALPHA CONSULTANTS LTD. ORIGINALS.
 2. INFORMATION FOR ALPHA CONSULTANTS DRAWING WAS OBTAINED FROM PRIOR DRAWINGS PREPARED BY GOLDER ASSOCIATES ATLANTA, GA.
 3. BASE CONTOUR MAP FROM NOVEMBER 1982 AERIAL PHOTOGRAPHY MODIFIED TO REFLECT GRADING AS PER THE ROAD AND DRAINAGE PLANS OF MAY 1984 WITH REVISIONS THROUGH JUNE 1984.

SEC DONOHUE
Environment & Infrastructure

CHEMICAL WASTE MANAGEMENT
VICKERY, OHIO FACILITY

FIGURE 3

PROPOSED SITE TOPOGRAPHY

DES. ALPHA CONSULTANTS, LTD. DR.

CHK'D APP'D

DATE 2-10-87 DWG. NO. P0454P05

3.0 CLOSURE PLAN AMENDMENTS

This section will discuss several amendments/changes to the original approved Closure Plan, attached in Appendix B. Letters of correspondence documenting these amendments/changes are attached in Appendix A.

3.1 Decision on Disposition of Pond 11 and 12 Material

Due to changes in the regulations since 1985 when the original Closure Plan was submitted, the United States Environmental Protection Agency (USEPA) determined that, due to land ban regulations enacted after submittal of the Closure Plan, the material from Ponds 11 and 12 could not be placed into the Closure Cell. However the Ohio EPA and CWM petitioned the EPA on this matter and finally received approval on March 11, 1991 to place the material from Ponds 11 and 12 into the Closure Cell.

3.2 Disposal of Liquids from Ponds 11 and 12

In accordance with the approved Closure Plan, the facility transferred the liquids from Pond 11 to Pond 12 and then pumped the liquids from Pond 12 into the onsite deepwell injection system. The liquids from Pond 11 were emptied by mid 1986. The liquids in Pond 12 were emptied by mid 1987. Between 1986 and November 1988 precipitation falling into the ponds was pumped from Pond 11 to Pond 12 and then to the onsite deepwell injection system. Since November of 1988 any precipitation that fell into the ponds was pumped from each pond individually to the onsite deepwell injection system. Section 1.0 of Appendix A contains a letter from CWM Vickery, dated March 18, 1991, to OEPA. Steps 1 and 4 of this letter refer to this topic.

3.3 Modutanks/Run-on Control

In order to minimize weather delays, the facility constructed three (3), 250,000 gallon Modutanks to stage, for forty eight hours, accumulated run-on into the ponds. After a storm event the contaminated water was collected in a sump and pumped to the Modutanks. As soon as practicable, but within forty eight hours, the water was filtered and pumped to the deepwell injection system. This operation was successfully accomplished and allowed the ponds to dry out and minimize delays. These tanks were an addition to the approved Closure Plan. On October 21, 1991 all liquids were removed from the Modutanks, blended and filtered, and pumped to the onsite deepwell injection system. On October 22, 1991, ENRAC began to remove the solids from each tank. Once the solids were out, the liners were also removed. The liners and solids were transported to the approved closure cell for disposal. The modutank frames were then dismantled and returned for future use. Removal of the modutanks was completed on October 24, 1991. Section 1.0 of Appendix A contains a letter from CWM Vickery, dated March 18, 1991, to OEPA. Steps 1 and 4 of this letter refer to this topic.

3.4 Stabilization Methodology

Consistent with the Closure Plan, CWM considered using two different methods of distributing the reagent material in the ponds. The original plan was to use PIGS to store the material, and forklifts to carry hoppers of each reagent ingredient from the storage location to the ponds for stabilization purposes. Since construction traffic would cause a problem with the operations traffic, CWM decided to use the second alternative. The reagent, a 3:1 quicklime to cement kiln dust ratio, as detailed in the Closure Plan and pre-weighed in transportation, was pneumatically conveyed directly into a covered diked area constructed in each cell. The pneumatic conveyor method was successfully accomplished and helped to progress the stabilization phase of this project.

Stabilization of the sludge was accomplished by the conventional backhoe method. The backhoe mixed the sludge and lime to produce a soil like stabilized material. Section 3.0 of Appendix A contains a letter from CWM Vickery, dated June 28, 1991, to OEPA regarding this topic.

3.5 Dry Sludge

During the fixation process the thin layer of sludge in Pond 12 dried out and showed all the physical characteristics of the fixed material. In order to minimize the waste and help alleviate dust, any material that exhibited the required physical characteristics of fixed sludge material was excavated and placed directly into the Closure Cell. The thin layer of dry sludge was pushed by dozers into a stockpile at the north east section of Pond 12 and stored until approval was obtained from OEPA to move the dry sludge without mixing it with the reagent, since this material already had the physical characteristics of the fixed material. Figure 4 shows the location of the dry sludge stockpile. Section 3.0 of Appendix A contains a letter from CWM Vickery, dated June 28, 1991, to OEPA referencing this change to the approved Closure Plan. Section 3.0 of Appendix A also contains the Approval letter, dated July 30, 1991, from the OEPA on this topic.

3.6 Procedure to Transfer Materials to the Closure Cell

The original plan of stockpiling the fixed sludges and building a haul road from Ponds 11 and 12 to the approved Closure Cell for transfer purposes was also changed. As an alternative, it was decided to construct a bridge at a suitable location to enable the contaminated stabilized sludge to be transported to the cell immediately after the fixation process was completed. This method also provided for separation of "clean" and "dirty" traffic. On October 28, 1991 the blacktop was removed from the bridge and disposed of in the closure cell. On October 29, 1991 soil samples were obtained from each end of the bridge. The sampling analysis showed the bridge was clean. The soil sample analytical data is in Appendix C. On November 17, 1991 the closure of the bridge was completed when Peerless Construction and ENRAC dismantled the bridge structure. Section 2.0 of Appendix A contains two letters from CWM Vickery, dated April 15, 1991 and May 20, 1991, to OEPA regarding this topic.

3.7 Backfilling Operation

For the clean backfilling operation of Ponds 11 and 12 the Closure Plan states that Ponds 11 and 12 should be backfilled with clean clay from the berms and the borrow area. Also, the closure plan called for the backfill should be placed in loose lifts not to exceed eight inches in depth and be compacted to 95% of maximum dry density with a moisture of $\pm 3\%$ of the optimum as determined by the Standard Proctor Compaction Test (ASTM D-698). Backfilling started in Pond 11 and a grade was developed so that Pond 11 drained into Pond 12. This allowed the site to continuously pump run on water from one sump in Pond 12 until the backfilling operation could reach final grade. CWM sampled and analyzed the rainwater in Pond 12 and submitted the results to Ohio EPA on January 29, 1992. Approval to pump the water from Pond 12 into Meyers Ditch was given on March 6, 1992. Section 6.0 of Appendix B contains the OEPA approval letter. Pond 11 was filled by placing clean clay in twelve inch maximum lifts and compacting with equipment traffic and a sheepsfoot roller. There were no soil tests conducted on the subgrade backfill. The backfilling continued until the clay reached three feet below the approved grades. In the spring of 1992, the Closure Plan and specifications were followed, as modified, and the required soil tests were conducted for the final three feet of backfill in Pond 11. Pond 12 was filled in the same manner as Pond 11. Section 4.0 of Appendix A contains two letters regarding this topic. Appendix E also has the Geotechnical documentation for the backfilling operation of Ponds 11 and 12.

4.0 STABILIZATION AND REMOVAL OF CONTAMINATED MATERIAL

CWM set up four staging areas for blowing the reagent into Ponds 11 and 12 in order to stabilize the sludge. There was one area in the northern and southern ends of each Pond. These areas consisted of a diked area with a plastic cover to control dust as the reagent was blown in. The reagent was pre-weighed as the tankers arrived onsite so the required 3:1 proportion of quicklime to cement kiln dust was pre-determined and could be adjusted as needed. The reagent description was the same as for Ponds 4, 5, and 7 and may be found in "Phase I of Closure Plan for Ponds 4, 5, and 7; Vickery Ohio Facility; Volume I, dated September 10, 1984". A standard mixture of 100 parts sludge, 15 parts quicklime, and 5 parts cement kiln dust was commonly used. The CQA representative monitored a substantial portion of the stabilization process to ensure the mixing procedure was performed to produce an acceptable material which met the criteria set forth by the closure plan requirements.

The normal procedure was to use dozers to push the sludge toward the reagent storage areas. A backhoe was stationed at the reagent storage area to mix the sludge with reagent and then load stabilized material for transportation to the Closure Cell. The ratio was controlled by knowing the amount of reagent blown into the mixing area and counting bucket loads of sludge to be added. The ratio varied depending on the consistency and physical characteristics of the stabilized material.

As required by the Soil Sampling Plan section of the Closure Plan, each pond was divided into two hundred feet squared grids for sampling. Figure 5 shows the location sampling grid. Stakes

were placed in a one hundred feet squared grid throughout both ponds and were maintained for the duration of the sampling process. Stabilization and excavation of sludge and clay progressed by section of each pond, after which soil sampling took place. Initially each pond was divided into northern and southern halves for sampling simplicity. Stabilization of sludges and excavation of fixed material were performed grid by grid until both ponds were rendered clean as per the approved Closure Plan requirements. Soil sampling procedures and progress will be discussed in Section 5.0, Sampling Program.

Because of minimal thickness of sludge in Pond 12, the sludge had less tendency to hold water. The sludge dried out and became soil like naturally. In order to consider the sludge stabilized, the Closure Plan states that the sludge must dry and be soil like. Since some of the Pond 12 sludge already met the criteria, it was stockpiled until approval to remove the material without addition of reagents was received from the state. Approval from OEPA to remove the dry sludge without utilizing the reagents was granted on July 30, 1991. A computed total of 158,352 cubic yards of stabilized sludge and contaminated clay was removed from Ponds 11 and 12 and transported to the Closure Cell. This is a loose yardage value derived from the number of truck loads and assuming twelve cubic yards per truck. A breakdown of the total amounts of stabilized sludge, rip-rap and associated berm material, and contaminated clay for each pond may be found below and on the following page.

POND 11

MATERIAL DESCRIPTION	AMOUNT REMOVED (CUYDS)	ACCUMULATED TOTAL MATERIAL REMOVED (CUYDS)
Stabilized Sludge	24,672	24,672
Rip-Rap and Assoc. Mat'l	28,380	53,052
Contaminated Clay	37,608	90,660

POND 12

MATERIAL DESCRIPTION	AMOUNT REMOVED (CUYDS)	ACCUMULATED TOTAL MATERIAL REMOVED (CUYDS)
Stabilized Sludge	19,056	19,056
Rip-Rap and Assoc. Mat'l.	25,296	44,352
Contaminated Clay	23,340	67,692

Air monitoring was performed during the closure of Ponds 11 and 12. Monitoring stations were set up around the site perimeter to record particle levels during operating hours. Specific details on the air monitoring for Ponds 11 and 12 may be found in Appendix G

5.0 SAMPLING PROGRAM

The sampling program for Ponds 11 and 12 was developed to satisfy the requirements of 40 CFR 265.228. As specified, the sampling grid for each pond was set to sample every two hundred feet squared. Sampling was performed by the SECD representative and the Roorback Consulting representative. One sample was obtained from the top six inches of the soil at the approximate center of each grid. Pond 11 had twenty sampling locations, eight on the bottom and twelve on the slopes of the berms. Pond 12 had twenty six sample locations, twelve on the bottom and fourteen on the slopes. Once Ponds 11 and 12 were rendered clean, twenty two samples were collected on the top haul roads around the ponds. One sample was taken above each grid, with four samples taken on the shared center berm. Appendix C consists of a diagram showing the sampling plan, a table stating the constituents with clean levels, the tabulated results, and the analytical results.

Once the sludge was removed, and prior to clay excavation, preliminary samples were taken to identify the extent of contamination in the clay. Five soil samples were obtained, three in Pond 11 and two in Pond 12. The results from these samples determined that excavation depth of two feet (2') was needed in the southern end of Pond 11 and gradually decline up to one foot (1') in the north end. Pond 12's excavation depth was from eighteen inches (18") in the south end to six inches (6") in the northern end. This contaminated clay was excavated and placed in the Closure Cell as stated in Section 4.0 of this document. On August 26, 1991, sampling of the ponds officially began. The sampling continued until October 29, 1991, when the last samples were collected for analysis.

All samples were collected using Shelby tubes to reduce the risk of cross contamination. The tubes were usually pushed using a dozer and labeled as they were completed. Sufficient notice

was given to Bowser Morner, Inc. and the OEPA prior to any sampling in order to have a representative available to verify the sampling procedure and locations. The shelby tubes were washed with soap and water and rinsed with distilled water prior to use.

After the samples were collected they were delivered to the Aqua Tech Laboratory in Melmore, Ohio. The laboratory was instructed to extrude the sample from the tube, cut off both ends and scrape the outside to ensure that the sample was taken from the center and not in contact with the tube or either end.

Each time a sample came back with a result above acceptable limits, that particular grid area was re-excavated, to a depth determined by the severity of the result, and re-sampled for the constituent(s) which failed during the previous sampling. Appendix C has a table showing the dates which each sample was taken.

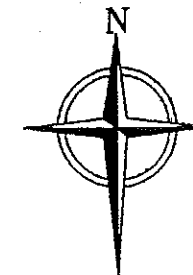
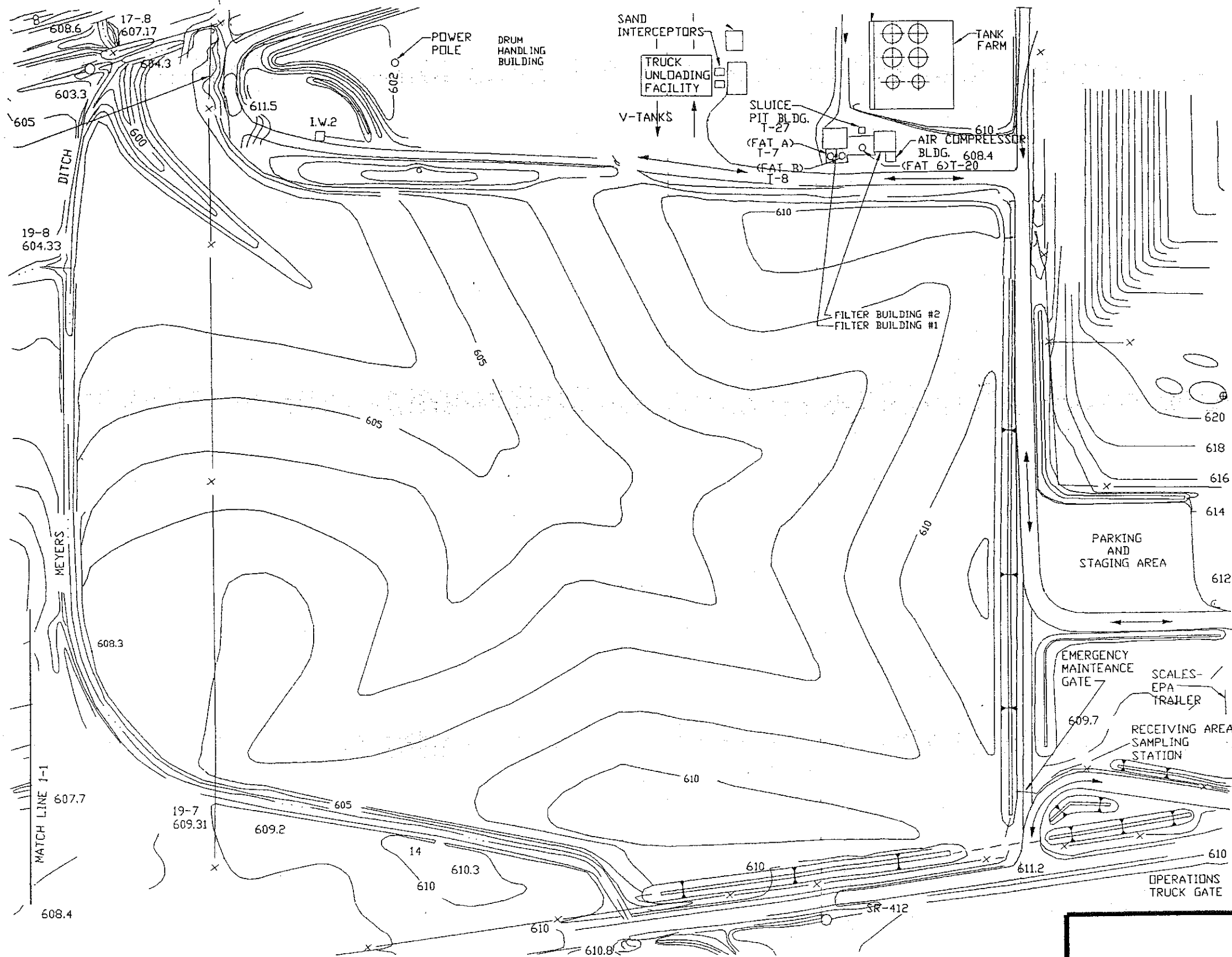
All grids were excavated and sampled until each area was rendered clean. All analytical results were given to the onsite OEPA representative for review. The backfilling of the Ponds did not begin until the OEPA verified the results of the pond sampling were clean. Section 5.0 of Appendix A contains the letter of approval from the OEPA verifying Ponds 11 and 12 are clean.

6.0 FINAL GRADING

The proposed final grading topography for Ponds 11 and 12 can be found in Figure 6. This figure illustrates the final elevations which create flow from the southeast corner of Pond 11 to the northwest corner of Pond 12 and continues to Meyers Ditch, west of the ponds. A final grading record drawing is in the BMI document located in Appendix E.

All material used for the backfilling of Ponds 11 and 12 was removed from a permitted borrow area. The borrow area is forty acres of land located in the north west corner of the facility. This area was originally farmland and was never used for facility operations. Once the clay has been removed, this area is proposed to be a lake with an island.

The Closure Plan states that backfilling should be placed in lifts and be tested every lift up to final grade. Following consultations with Michael F.R. Curry, the CWM Vickery Engineering Manager, it was decided to place the fill in one foot compacted lifts and only test the top three feet as required in the specifications. Refer to Appendix E for Bowser Morner, Inc. (BMI) geotechnical report on the work performed during the backfilling operation. On October 31, 1991 ENRAC began to cut the berms around the ponds and use the clean clay as fill in the ponds. Due to weather conditions and winter shutdown, it was decided to concentrate on raising Pond 11 to provide a graded fall to the west into Pond 12. This would provide a collection area for precipitation to be pumped out. Wet soil conditions in one area near the NW corner of Pond 11 forced ENRAC to bridge the first lift. The runoff from Pond 11 flowed into Pond 12 and collected. A sample of the water in Pond 12 was taken on December 10, 1991 and sent to Environmental Enterprises, Inc. of Cincinnati for analysis. The analysis results were received on January 14, 1992 and were submitted to OEPA for approval to begin discharging the water



0 100 200 300 400
SCALE IN FEET

FIGURE 6



CWM
Chemical Waste
Management Inc.

PROPOSED
FINAL GRADING PLAN
PONDS 11 & 12
VICKERY, OHIO FACILITY

SEC DONOHUE
Environment & Infrastructure

to natural water courses. A letter dated March 6, 1992 gave the site approval to begin discharging the water, a copy of this is in Section 6.0 of Appendix A.

In July 1992, ENRAC began to place the final three feet of clay in Pond 11 as previously mentioned. Simultaneously, they began to place fill in Pond 12 to maintain a flow pattern to permit offsite discharge at the northwest corner of Pond 12. BMI was onsite to perform moisture and compaction tests during the placement of the final three feet of compacted material. In late September, 1992, the final lift of backfill was completed. This final lift was compacted as per the project specifications, except for one area bounded by Northings 770W and 990W and Eastings 97N and 99N. This area was completed to 92% maximum dry density based on the standard proctor. CWM Vickery agreed to accept this compaction since the construction season was coming to an end and CWM does not intend to construct in this area. A letter dated September 22, 1992 regarding this topic is in section 7.0 of Appendix A. The ponds were backfilled to meet the proposed design elevations, within a one tenth tolerance limit. Finally, a topsoil layer was placed for vegetative growth.

Seed amounts and mixtures were identical as to those used for the Closure Cell project. One seed contractor placed the fertilizer, seed, and erosion control material for all affected areas. Fertilizer was PNK (Phosphate, Nitrogen, Potash) 15-15-15 spread at a rate of ten pounds per one thousand square feet. The seed used was a mixture consisting of 70% Kentucky 31 fescue, 20% Lynn Perennial Rye, and 10% medium red clover, spread at a rate of one pound per one thousand square feet. A straw mulch with crimping was used as the erosion control material, since the slopes were less than one percent, and spread at a rate of one pound per one thousand square feet.

7.0 SUMMARY

CWM retained SECD to serve as the Resident CQA Engineer during the closure of Ponds 11 and 12 at the CWM Vickery Ohio Facility. SECD retained BMI to serve as the Independent Registered Professional Engineer. All minor changes to the original Closure Plan were approved by the OEPA and/or the designer prior to incorporating any field changes into this project.

This report documents the closure activities which took place from June 15, 1991 through September 30, 1992 when the project was rendered complete.

Based on our professional judgement and the information obtained through on-site observation of closure activities, and laboratory and field test results, the Closure of Ponds 11 and 12 are judged to have been closed in substantial conformance with the Approved Closure Plan for this project.



Chemical Waste Management, Inc.

3956 State Route 412
Vickery, Ohio 43464
419/547-7791

CERTIFIED MAIL
P395 787 860

March 18, 1991

Mr. Gerry Ioannedes, Interim Director
Ohio Environmental Protection Agency
1800 WaterMark Drive
Columbus, OH 43266

Re: Closure Plan for Ponds 11 & 12

Dear Mr. Ioannedes:

Pursuant to paragraph V.A. of Civil Action No. 88-7599 between United State of America and Chemical Waste Management, Inc. (CWM), meeting with Ohio Environmental Protection Agency (Ohio EPA) on March 11, 1991 regarding the Closure Plan for Ponds 11 & 12, CWM wishes to confirm that we will follow the July 3, 1985 closure plan as approved March 31, 1988 for stabilizing and transferring stabilized sludge and contaminated soils from Ponds 11 and 12 into the closure cell. However, CWM is proposing selected field changes that would simplify the excavating/stabilization operation, eliminate the stockpile area and expedite the schedule. These suggested field changes to the July 3, 1985 operating plan are as follows:

STEPS 1 and 4: Transfer of Liquids from Ponds 11 & 12

All oily liquids on the surface of the ponds and over 120 million gallons of liquid waste were treated and disposed as specified in Paragraph 24 of the Consent Decree prior to 1987. Residual liquids remaining in each pond are the result of precipitation. CWM will handle residual water in each pond as well as water accumulated during the closure operation separately. CWM will not transfer liquids from Pond 11 to Pond 12 as stated in the 1985 Closure Plan. Additionally, 2 or 3 - 200,000 gallon Modutanks will be erected on-site to collect and stage accumulated run-on from major rainfall events. The Modutanks will provide the necessary storage capacity to minimize prolonged weather delays. All contaminated water will be filtered and disposed by deepwell injection.

Ponds will also be graded to divert clean water to natural drainage once an area has been sampled and determined to be cleaned.

STEP 2: Mobilization and Preparation of an Operating Area

CWM plans to leave the decontamination trailer in the southeast corner of the operating area; however, we propose to move the equipment staging, decontamination and repair area to the central dike of Ponds 11 and 12 at the northern end of the dike. A gate will also be installed along the fence line at the northern dike area to allow access. The equipment relocation is to allow an organized fixation/excavation of the ponds starting from the far south end sequentially moving to the north.

The Reagent Loading Area used to close Ponds 4, 5 and 7 will be reactivated with forklifts or equivalent heavy equipment transferring the reagent to a Reagent Staging Area immediately outside the operating zone.

STEPS 3 and 5: Chemical Fixation of Sludges and Stockpiling of Materials in Ponds 11 and 12

Fixation Methodology

Consistent with the Closure Plan for 4, 5 and 7, CWM will look at two methods to distribute and mix the material with the contaminated sludges.

Initially, CWM will attempt to fix the sludge in a harrow or auger type mixing method using composting or farm equipment with a dozer. As Ohio EPA knows this method proved inefficient in Pond 4, 5 and 7 because the sludge was as deep as six feet and the bottom was very soft. Ponds 11 and 12 contain an estimated maximum of 18 inches of sludge and a suspected stabilize bottom. Therefore, the harrow methodology should be successful.

If the composting and farm equipment methodology prove ineffective, CWM will again rely on the conventional backhoe method to mix and stabilize the sludge.

Conveyors

CWM proposes to minimize and possibly eliminate the stockpiles using conveyors to transfer fixed material from the northern dike, across the tanker truck road and into the closure cell. The conveyor system will replace the proposed haul road and transfer the freshly stabilized sludge to the closure cell on a continuous basis; thereby, eliminating the need for the stockpile. The conveyors will simplify the transfer operation and may also expedite the schedule.

The conveyors will be constructed with covers to eliminate potential air releases of contaminated material from the wind or weather. Additionally, the bottoms of the conveyor will be lined with HDPE liner or equivalent to capture any material that could accidentally fall off the moving trough and escape the operating area.

Concurrent Operations in Ponds 11 & 12

If the harrow fixation methodology proves effective, CWM may have two crews working concurrently to stabilize materials in both Ponds 11 and 12 in an attempt to accelerate the proposed schedule.

STEP 6: Removal of Closure Cell Interim Cover and Placement of Stockpiled Materials from Ponds 11 and 12 into the Closure Cell

CWM will not be constructing an interim cap or cover. Instead, CWM plans to progressively fill the cell with stabilized sludge and contaminated soil starting at north/northeast corner moving southward down to the south/southwest corner until all contaminated material is removed from Ponds 11 and 12. Concurrent with the filling operation, CWM will cap the cell starting from the north/northeast end, progressively moving southward until capping is complete. A portable fence will be installed delineating the clean cover area from the active operating zone as the cap activity progresses southward.

CWM also proposes to use conveyors as noted in Steps 3 and 5 to maintain a continuous operation and eliminate stockpile material.

STEP 7: Removal of Contaminated Soil from Ponds 11 and 12 and Placement in Closure Cell

CWM will remove contaminated soil according to Soil Sampling Plan (Appendix VII of 1985 Closure Plan and OEPA letter dated March 31, 1988). Soil will be transferred to the conveyor and moved into the closure cell. Also, see Soil Sampling Plan.

STEP 8: Construction of the Closure Cell Final Cover

CWM plans to progressively cap the closure cell as soon as areas are filled to grade with contaminated material. The cap will start in the north/northeast corner and progressively follow the filling operations toward the southwestern end of the cell. A fence line will be constructed which progressively moves southward to delineate the clean capped area from the active operating zone.

STEP 9: Regrading of Pond Area with Clean Soil

No change.

STEP 10: Demobilization of All Closure-Related Operating Areas

No change.

SCHEDULE

The attached schedule projects CWM to complete the closure of Ponds 11 and 12 by October 1992. CWM feels the harrow fixation methodology, use of conveyors and progressive filling and capping of the closure cell could expedite the aforementioned schedule.

SOIL SAMPLING PLAN

Chemical Constituents - Hazardous Waste Levels

Consistent with the sampling plan for the Closure of the W-Tank, CWM will sample for RCRA organic constituents and codes associated with wastes handled by the facility. They are as follows:

<u>Code</u>	<u>Constituents</u>	<u>Hazardous Waste Level Soil</u>
D004	Arsenic	5 ppm ¹
D005	Barium ✓	100 ppm ¹
D006	Cadmium	1.0 ppm ¹
D007	Chromium (Total)	5.0 ppm ¹
D008	Lead	5.0 ppm ¹
D009	Mercury ✓	0.2 ppm ¹
D010	Selenium ✓	1.0 ppm ¹
D011	Silver ✓	5.0 ppm ¹
F001	Tetrachloroethylene, Methylene Chlorine Trichloroethylene 1,1,1 Trichloroethane Carbon Tetrachloride Chlorinated Fluorocarbons	Above detection limit ²
F002 ³	1,1,2 Trichloroethane Chlorobenzene 1,1,2 Trichloro-1,2,2 Trifluoroethane Ortho-Dichlorobenzene	Above detection limit ²
F003 ³	Xylene, Acetone, Ethyl Acetate, Ethyl Benzene, Ethyl Ether Methyl Isobutyl Ketone, n-Butyl Alcohol, Cyclohexanone, Methanol	Above detection limit ²
F004 ³	Toluene, Methyl Ethyl Ketone Carbon Disulfide, Isobutanol, Pyridine, 2-Ethoxyethanol Benzene, 2-Nitropropane	Above detection limit ²
F006	Cadmium Chromium -	Same as D006 and D007
F007	Cyanide (Salts)	0.5 mg/kg CN ⁴

<u>Code</u>	<u>Constituents</u>	<u>Hazardous Waste Level</u>
		<u>Soil</u>
F008	Cyanide (Salts)	0.5 mg/kg CN ⁴
F009	Cyanide (Salts)	0.5 mg/kg CN ⁴
K062	Chromium, Lead	5.0 ppm ¹
U044	Chloroform	Above detection limit ²
U080	Dichloromethane	Above detection limit ²
U151	Mercury	Same as D009
U211	Carbon Tetrachloride	Above detection limit ²
Other	Phenols, PCBs	Above detection limit ²

Notes

1. TCLP Levels.
2. Concentrations of constituents for this code shall not be detectable above sample detection limit.
3. Only those compounds not already specified by previous codes are added to the list by this code.
4. Documented lower analytical limit when comparing background samples, analytical error and interference during W-Tank sampling effort.

Background Levels of Naturally Occuring Elements

Elements of concern are As, Ba, Cd, Cr, Pb, Hg, Se, and Ag. CWM has developed a historical data base for the aforementioned naturally occurring element during the sampling effort for the W-Tank Closure. Using a basis of four (4) background samples the action levels for Ponds 11 & 12 are as follows:

<u>Element</u>	<u>No. Of Samples</u>	<u>Range</u>	<u>CONCENTRATION - mg/kg</u>		
			<u>Mean</u>	<u>Std Deviation</u>	<u>Mean + 2X Std. Deviation</u>
As	4	5-16	11.5	4.65	20.8
Ba	4	37-140	102	55.03	212.1
Cd	4	-	<0.7	-	-
Cr	4	5-25	17.75	8.77	35.29
Pb	4	4-12	9.5	3.79	17.7
Hg	4	0.05-0.13	0.08	0.035	0.15
Se	4	-	<0.2	<0.2	<0.2
Ag	4	0.4-39	10.1	19.27	48.6

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please call Steve Lonneman at (419) 547-7791.

Sincerely,

CHEMICAL WASTE MANAGEMENT, INC.



F.G. Nicar
General Manager

FGN/dlm

cc: Thomas Creapeau, OEPA, Central Office
Randy Meyers, OEPA, Central Office
Chuck Hull, OEPA, NWDO
Jeff Steers, OEPA, NWDO
Bob Heitman, CWM Princeton
Ron Youse, CWM Princeton
Steve Lonneman
Jay Skabo
Jim Greeley, ENRAC Princeton
Tod Milne, ENRAC Princeton
Larry Patton, ENRAC Princeton
Paul Malina, ENRAC
Jim Saric, USEPA, Region IV
Agency Correspondence

Attachments - Closure Plan
Program

CLOSURE PROGRAM PONDS 4, 5, 7, 11 AND 12

ACTIVITIES	1991										1992									
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	
1. PLACE TEMPORARY COVER	1																			
2. DEMOBILIZATION		1																		
3. MOBILIZATION		1																		
4. SITE PREPARATION		1																		
5. STABILIZE/STOCKPILE POND 11			1																	
6. TEST AREA							1													
7. RELOCATE TO POND 12							1													
8. STABILIZE/STOCKPILE POND 12								1												
9. OPEN CLOSURE CELL											1									
10. CONSTRUCT ACCESS TO CELL											1									
11. MOVE MATERIAL (11 & 12) TO CELL												1								
12. TEST AREA													1							
13. RE-EXCAVATE														1						
14. TEST AREA															1					
15. CLOSE ACCESS																1				
16. PLACE CLAY LINER																	1			
17. INSTALL HDPE LINER																		1		
18. INSTALL GEONET																			1	
19. INSTALL GEOTEXTILE																				
20. PLACE CLAY FILL																				
21. PLACE TOP SOIL																				
22. INSTALL DRAINAGE																				
23. GRASS SEED/FENCE/MARK																				
24. SURVEY																				
25. CERTIFICATION																				

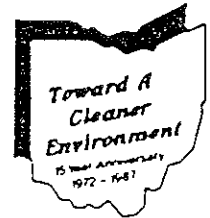
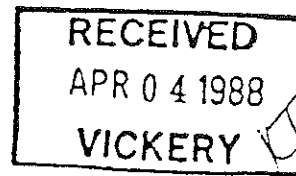
NOTE: A) Program is based on approval being received January 1, 1991.

B) Program assumes Ponds 11 and 12 will be placed in cell.



State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149



CERTIFIED MAIL

Richard F. Celeste
Governor

March 31, 1988

Re: CLOSURE PLAN
CHEMICAL WASTE MANAGEMENT (VICKERY)
SURFACE IMPOUNDMENTS 11 & 12
OHD020273819, 03-72-0191

Mr. Fred Nicar, General Manager
Chemical Waste Management
3956 State Route 412
Vickery, Ohio 43464

Dear Mr. Nicar:

On July 5, 1985, Chemical Waste Management submitted to Ohio EPA a closure plan for surface impoundments 11 and 12 located at 3956 State Route 412, Vickery, Ohio. Revisions to the closure plan were received on May 18, 1987; December 7, 1987; January 29, 1988. The closure plan was submitted pursuant to Rule 3745-66-12 of the Ohio Administrative Code (OAC) in order to demonstrate that Chemical Waste Management's proposal for closure complies with the requirements of OAC Rules 3745-66-11 and 3745-66-12.

The public was given the opportunity to submit written comments regarding the closure plan of Chemical Waste Management in accordance with OAC Rule 3745-66-12. Comments were received and considered by Ohio EPA in this matter.

Based upon review of the company's submittal and subsequent revisions, I conclude that the closure plan for the hazardous waste facility at Chemical Waste Management meets the performance standard contained in OAC Rule 3745-66-11 and complies with the pertinent parts of OAC Rule 3745-66-12.

The closure plan submitted to Ohio EPA by Chemical Waste Management is hereby approved with the following modifications:

1. During closure activities, every effort to minimize fugitive dust emissions shall be made. The Ohio EPA reserves the right to direct that closure activities cease whenever the Ohio EPA determines that activities at the facility are creating a public nuisance or cause a present or imminent danger to public health or the environment. Actions contributing to such a danger may include, but are not limited to, excessive fugitive dust emissions leaving the site and spill discharges to waters of the state.
2. All closure activities shall cease when wind speeds average 20 MPH or more during any one hour period and/or during wind gusts exceeding 30 MPH. Such operations shall not restart until one half hour of less than 20 MPH average wind speeds has elapsed.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

MAR 31 1988

By: James Conn Date: 3-31-88

3. Closure activities shall be restricted to daylight hours. Additional closure activities shall be restricted to six days a week (Monday through Saturday). Chemical Waste Management may conduct closure activities on a Sunday or a holiday if they obtain prior approval from the Northwest District Office of the Ohio EPA and an employee of the Division of Solid and Hazardous Waste Management, Northwest District Office, Ohio EPA, or an observer acceptable to said Division of the Ohio EPA, can be present during said closure activities.
4. In accordance with Paragraph H9 of the Consent Agreement and Final Order (CAFO) between Chemical Waste Management and the USEPA, Chemical Waste Management shall conduct post closure quarterly groundwater monitoring at the following monitoring wells around Ponds 11 and 12: MW-21, MW-22, L-22, L-29, and L-31 to L-35. The following parameters shall be analyzed for:

B1 (Chloromethyl) Ether	Carbon Tetrachloride
Chlorobenzene	Chloroform
1,2-Dichloroethane	Methylene Chloride
Tetrachloroethylene	Toluene
1,1,1-Trichloroethane	1,3-Dichlorobenzene
Arsenic	Cadmium
Chromium	Lead
Phenolics (Total)	PCBs
- All post closure groundwater monitoring shall continue for a period of three years. Based on this data, the Ohio EPA will evaluate the need for further monitoring. Nothing in this condition shall preclude Chemical Waste Management from complying with any other groundwater monitoring requirements under state or federal law.
5. The revised closure plan schedule outlined in the May 18, 1987, Chemical Waste Management submittal to the Ohio EPA, NWDO, shall be considered a closure plan revision.
6. Traffic patterns for controlling vehicles associated with closure activities and outside waste trucks shall be accomplished by Separation by Location as described in Chemical Waste Management's May 18, 1987, letter to the Ohio EPA.
7. Soil from the bottoms and sides of the impoundments shall be considered contaminated if sample results indicate the presence of RCRA regulated organic compounds above the compounds analytical detection limits or if EP toxic metals are present above the maximum concentrations specified in OAC 3745-51-24. Detection limits shall be those found in USEPA Publication SW-846, "Test Methods for Evaluating Solid Waste." Contaminated soil shall be removed and managed as hazardous waste.

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

MAR 31 1988

By: Mary Charni Date 3-31-PP

8. Background levels of naturally occurring elements shall be determined by taking at least four (4) soil borings in the same soil type and at the same depth as the soil borings to be taken in the bottoms and sides of the impoundments. All metals analyses of background samples shall be for total metals. The location of the background borings shall be submitted for approval to the Ohio EPA NWDO and CO within thirty (30) days of the date of this letter.
9. Chemical Waste Management shall select from Attachment A a means by which background and closure soil samples shall be compared to determine if soils remaining in the impoundments are significantly contaminated with naturally occurring elements. Chemical Waste Management shall notify the Ohio EPA NWDO and CO of its selection within ten (10) days of receipt of soil sampling results. Soils contaminated with metals at greater than background levels but less than EP toxic levels shall be removed and managed as solid waste.
10. Certification of closure shall be submitted by the owner or operator and by an independent registered professional engineer as required by OAC 3745-66-15. The certifications shall state that the facility has been closed in accordance with the approved partial closure plan. The owner or operator shall also certify closure using the statement found in OAC 3745-50-42(D).
11. The total suspended particulate matter ambient air quality standards for evaluation of the particulate monitoring data obtained during closure will be 150 ug/m³.
12. Air monitoring for volatile organic compounds (VOC) after the first five days of closure shall include analysis of at least one downwind VOC sample per week.
13. The air monitoring plan submittals of December 7, 1987, and January 29, 1988, shall be considered a part of this closure plan.
14. This approval is conditional upon Chemical Waste Management receiving all applicable approval from the USEPA (RCRA and TSCA). Chemical Waste Management is not released from complying with future conditions which may be imposed by any such approval.

Please be advised that approval of this closure plan does not release Chemical Waste Management from any responsibilities as required under the Hazardous and Solid Waste Amendments of 1984 regarding corrective action for all releases of hazardous waste or constituents from any solid waste management unit, regardless of the time at which waste was placed in the unit.

Due to the fact that the Ohio EPA is not currently authorized to conduct the federal hazardous waste program in Ohio, your closure plan also must be reviewed and approved by USEPA. Federal RCRA closure regulations (40 CFR 265.112) require that you submit a closure plan to George Hamper, Chief, Waste

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

By: Me... Carri Date 3-31-88

MAR 31 1988

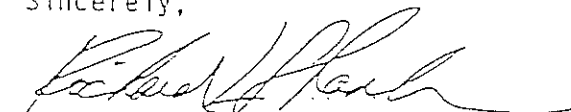
Mr. Fred Nicar
Page Four
March 31, 1988

Management Division, Technical Programs Section, Ohio Unit, USEPA, Region V, SHS-13, 230 South Dearborn Street, Chicago, Illinois 60604. Approval by both agencies is necessary prior to commencement of activities required by the approved closure plan. If closure activities will, of necessity, take longer than 180 days to complete in order to allow for a period of time for review and approval by USEPA, a longer closure period is hereby approved pursuant to OAC rule 3745-66-13(B) provided Chemical Waste Management shall commence closure upon receipt of this approval by Ohio EPA or upon receipt of approval by USEPA, whichever occurs later. The closure period shall not exceed 180 days beyond the latter approval.

You are notified that this action of the Director is final and may be appealed to the Environmental Board of Review pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Board of Review within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency and the Environmental Enforcement Section of the Office of the Attorney General within three (3) days of filing with the Board. An appeal may be filed with the Environmental Board of Review at the following address: Environmental Board of Review, 236 East Town Street, Room 300, Columbus, Ohio 43266-0557.

When closure is completed, the Ohio Administrative Code Rule 3745-66-15 requires the owner or operator of a facility to submit to the Director of the Ohio EPA certification by the owner or operator and a registered professional engineer that the facility has been closed in accordance with the approved closure plan. The certification by the owner or operator shall include the statement found in OAC 3745-50-42(D). These certifications should be submitted to: Richard L. Shank, Director, Ohio Environmental Protection Agency, Attn: Thomas Crepeau, Program Planning and Management Section, Division of Solid and Hazardous Waste Management, P.O. Box 1049, Columbus, Ohio 43266-0149.

Sincerely,


Richard L. Shank, Ph.D.
Director

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary G. Gamm Date 3-31-88

RLS/RM/ara

cc: Thomas Crepeau/DSHWM Central File, Ohio EPA
Rebecca Strom, USEPA, Region V
Jeff Steers, NWDO, Ohio EPA
Chuck Hull, NWDO, Ohio EPA
Randy Meyer, DSHWM, Ohio EPA

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

1370U

MAR 31 1988

ATTACHMENT A

NATURALLY OCCURRING ELEMENTS OR COMPOUNDS

Alternative A - Soils containing naturally occurring elements in the area of the hazardous waste management unit shall be considered to be contaminated if concentrations in the soils exceed the mean of the background samples plus two standard deviations.

All metals analyses must be for total metals.

Alternative B - Soils containing RCRA-regulated metals shall be considered to be contaminated if concentrations in the soil exceed the upper limit of the range for Ohio farm soils, as given below:

<u>Metal</u>	<u>Range (Total Metal Concentration in ug/g)</u>
Cadmium	0 - 2.9
Chromium	4 - 23
Lead	9 - 39

(Source: Logan, T.J. and R.H. Miller, 1983. Background Levels of Heavy Metals in Ohio Farm Soils. Research Circular 275, Ohio State University, Ohio Agricultural Research and Development Center, Wooster.)

All metals analyses must be for total metals.

Ohio EPA may reject any of the above alternatives based on site-specific information. Also, the Agency may accept alternate statistical methods if the owner/operator can demonstrate that the statistical method proposed is environmentally acceptable and is technically superior.

1370U

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

By: Mary C. [Signature] Date 3-31-88

MAR 31 1988



Chemical Waste Management, Inc.

3930 State Route 472
Vickery, Ohio 43454
419/547-7791

UPS - OVERNITE

April 15, 1991

Mr. Gerry Ioannedes, Interim Director
Ohio Environmental Protection Agency
1800 WaterMark Drive
Columbus, Ohio 43266

RE: Closure Plan for Ponds 11 & 12 - Field Change
Revision to Letter dated March 18, 1991

Dear Mr. Ioannedes:

Pursuant to paragraph V.A. of Civil Action No. 88-7588 between United States of America and Chemical Waste Management, Inc. (CWM) and the meeting with Ohio Environmental Protection Agency (Ohio EPA) on March 11, 1991 regarding the Closure Plan for Ponds 11 & 12, CWM wishes to confirm that we will follow the July 3, 1985 Closure Plan as approved March 31, 1988 for stabilizing and transferring stabilized sludge and contaminated soils from Ponds 11 and 12 into the closure cell. However, CWM is proposing selected field changes that would simplify the excavating/stabilization operation, minimize the stockpile area and expedite the schedule. These proposed field changes to the July 3, 1985 operating plan and the March 18, 1991 letter are as follows:

STEPS 3 and 5: Chemical Fixation of Sludges and Stockpiling of Materials in Ponds 11 and 12

Conveyors - (NOT A VIABLE OPTION)

CWM, in our letter dated March 18, 1991, had proposed to minimize and possibly eliminated stockpiles using conveyors to transfer fixed material from the northern dike across a service road into the closure cell. However, CWM has chosen not to use this transfer approach after an exhaustive search of conveyor suppliers. Some conveyor suppliers were not prepared to bid on a project of this complexity, and others mentioned the problems of construction of an enclosed conveyor suspended over a major process thoroughfare is a complex system. The conveyor suppliers required a long delivery lead time and noted maintenance could be a major problem in the sites harsh environment. They also doubted a

covered conveyor could effectively control dust emission. In addition, the foundation work and supports were fairly complex. Therefore, CWM has elected to construct a bridge-type precast structure to serve as the haul road.

Bridge/Haul Road

CWM proposes to construct a bridge across the process road between Ponds 11 and 12 and the Closure Cell. The bridge will be constructed from precast culvert structures and will include foundation footers, structural supports, along with precast frames that form the deck of the bridge.

The use of the bridge allows access to Ponds 11 and 12 from the Closure Cell, the present reagent area, and the existing support zone; thereby, providing additional flexibility, site operational control, and a time saving for remobilization. A conveyor system will not provide CWM with the aforementioned benefits.

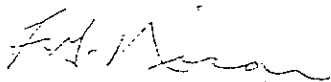
Trucks will be loaded with fixed material from Ponds 11 and 12 and travel over the bridge to the closure cell on a continuous basis. Any stockpiles in Ponds 11 and 12 will be kept to a minimum.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please call Steve Lonneman at (419) 547-7791.

Sincerely,

CHEMICAL WASTE MANAGEMENT, INC.



F.G. Nicar
General Manager

FGN/dlm

Closure Plan for Ponds 11 & 12 - Field Change
April 15, 1991
Page 3

cc: Thomas Creapeau, OEPA, Central Office
Randy Meyers, OEPA, Central Office
Ed Kitchen, OEPA, Central Office
Chuck Hull, OEPA, NWDO
Jeff Steers, OEPA, NWDO
Bob Heitman, CWM Princeton
Ron Youse, CWM Princeton
Jim Greeley, ENRAC Princeton
Tod Milne, ENRAC Princeton
Larry Patton, ENRAC Princeton
Paul Malina, ENRAC
Jim Saric, USEPA, Region IV
~~Michael Curry~~
Jay Skabo
Steve Lonneman
Agency Correspondence



Chemical Waste Management, Inc.

3956 State Route 412
Vickery, Ohio 43464
419-547-7791

CERTIFIED MAIL
P856 438 871

May 20, 1991

Mr. Donald R. Schregardus, Director
Ohio Environmental Protection Agency
1800 WaterMark Drive
P.O. Box 1049
Columbus, OH 43266-0149

Subject: Closure of Ponds 11 and 12 - Use of Bridge Structure
for Transfer of Stabilized Material to Closure Cell

Dear Mr. Schregardus:

As a follow up to my letter to the Director of April 15, 1991 and the recent request from your agency, I enclose the detail design of the bridge structure that we intend to use, to transport stabilized material from Ponds 11 and 12 to the closure cell during the stabilization phase of the project.

The bridge structure is a precast concrete structure which will sit on footings and dwarf walls. The bridge will span the main North/South road of the site. Backfill behind the bridge abutments, held in place by gabions, will provide access to the east dike of pond 11 and the west dike of the closure cell. See Figure 1. The location of the bridge is shown in Figure 2.

The bridge will be 30 ft. wide with 3 ft. high parapets on each side. Roadway width will be 24 ft., and the roadway on the bridge and 50 ft. either side of the bridge will be paved to minimize dust.

The bridge will provide access between ponds 11 and 12 and the closure cell. It will also provide access from the decon trailer to the work area for the work force. Stabilized material will be transported from the Ponds by dump truck to the closure cell and the bridge has been designed for two-way traffic with one loaded dump truck moving toward the cell and an empty truck returning from the cell.

The surfacing on the bridge will be installed as a swale, so that run off will flow inward, and will then discharge either into the closure cell or into pond 11 where it will be handled with all other precipitation. On completion, the black top from the bridge will be removed and placed in the cell, while the bridge will be decontaminated and tested like other equipment and dismantled.

With regard to the Modutanks, the tanks will be decontaminated using triple rinsing with the final rinse being analyzed for the same parameters as described in the closure plan for decontaminating equipment. Any filter material resulting from filtration prior to deep well injection of "water" will be disposed of under present disposal procedures for the site.

All contaminated soil from Ponds 11 and 12 will be placed in the closure cell up to its capacity.

I hope that the above description, together with the drawings and figures gives you sufficient information in order to approve the field changes to the closure plan so that closure operations can start during the second week of June.

If you have any questions, please contact either myself or Michael Curry at (419) 547-7791.

Sincerely,

CHEMICAL WASTE MANAGEMENT, INC.



F.G. Nicari
General Manager

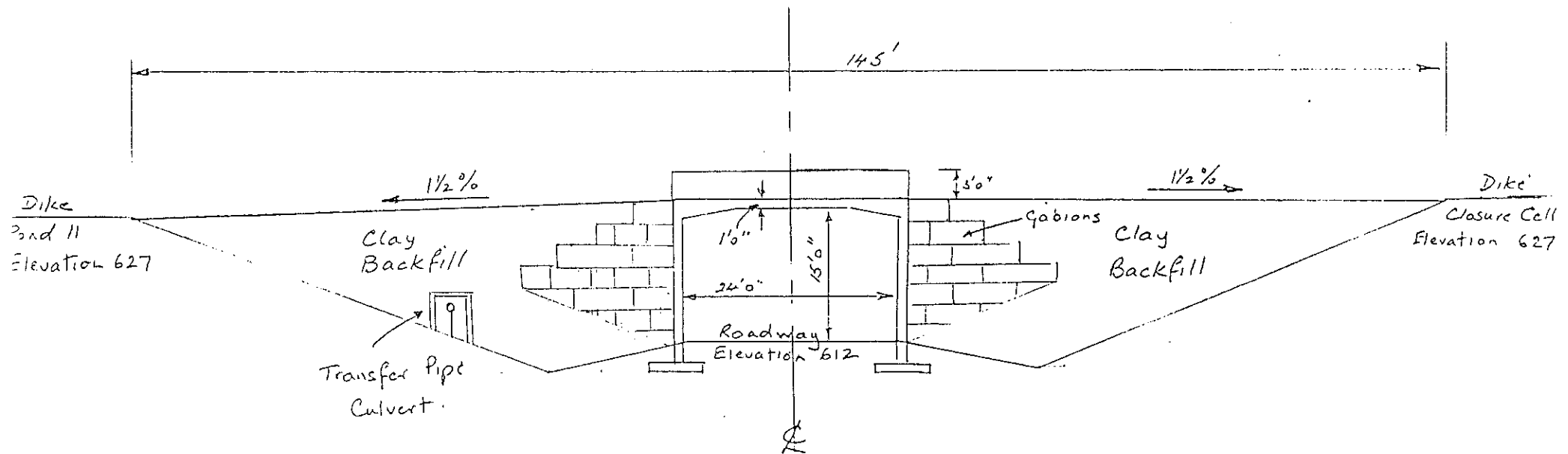
FGN/dlm

enclosure

cc: w/attachments
Ed Kitchen, OEPA Manager DSHWM (FED EX)
Chuck Hull, OEPA/NWDO (FED EX)
Michael Curry
Bob Heitman
Jim Saric, USEPA Region V
Agency Correspondence

cc: wo/attachments
Jay Skabo
Steve Lonneman
Ron Youse

Fig c. 1



South Elevation of Bridge for Transfer
of Pond 11 and 12 material to Closure
Cell.

Not 10 scale

37-2
612 28
25.2

605

37.3
606.4 608.35

608

608.6

37.2
611.55

610

Bridge

ATION

620.4

620.5

REAGENT

610

608.7

CLOSURE CELL
(Interim Cover)

640



Chemical Waste Management, Inc.

3806 State Route 412
Vicksburg, Ohio 43084
419/547-7791

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 743 131 717

June 28, 1991

Mr. Donald R. Schregardus, Director
Ohio Environmental Protection Agency
1800 WaterMark Drive
P.O. Box 1049
Columbus, OH 43266-0149

Subject: Closure Plan for Ponds 11 and 12 Field Change
Revision to Letter Dated March 18, 1991

Dear Mr. Schregardus:

Pursuant to paragraph V.A of Civil Action No. 88-7599 between United States of America and Chemical Waste Management, Inc. (CWM) meeting with Ohio Environmental Protection Agency (Ohio EPA) on March 11, 1991 regarding the Closure Plan for Ponds 11 and 12, CWM wishes to confirm that we will follow the July 3, 1985 closure plan as approved March 31, 1988 for stabilizing and transferring stabilized sludge and contaminated soils from Ponds 11 and 12 into the closure cell. However, CWM is proposing selected field changes that would simplify the stabilization operation, minimize dust, and expedite the schedule. The proposed field changes to the July 3, 1985 operating plan and March 18, 1991 letter are as follows:

STEPS 3 AND 5 CHEMICAL FIXATION OF SLUDGES AND
STOCKPILING OF MATERIALS IN PONDS 11 AND 12

Fixation Methodologies

Consistent with the closure plan, CWM will look at two methods of distributing the reagent material in the ponds. Because of the problem of crossing of construction traffic (fork lifts carrying hoppers) and operational traffic (incoming waste loads), CWM will blow reagent in the 3:1 lime to kiln dust ratio detailed in the closure plan and pre-weighed in transportation, directly into the pond into a pre-made and covered diked area. Sludge will be pushed up to and placed on the reagent prior to mixing. Mixing will then take place with backhoes.

Mr. Donald R. Schregardus, Director
Ohio Environmental Protection Agency
June 28, 1991
Page 2

Backhoes are being used initially as the depth of sludge encountered in Pond 11 is more than anticipated, and too deep at present, to use harrow type equipment. However, the moisture content is extremely low and the mixture rapidly reaches a soil like state as required in the closure plan guidelines. Based on criteria submitted to Ohio EPA in 1985 as a qualitative guide for fixed sludges to closure of Ponds 4, 5, and 7 (Attachment 1), the mixing was to continue until a soil like material was obtained. Criteria C allowed for addition of reagent over and above the recipe until this state was obtained, and in the latter stages of closing ponds 4, 5, and 7 the ratio of reagent to sludge was reduced for the drier previously closed area of Pond 4.

Based on the TCLP's run (Attachment 2) for the sludges in Ponds 11 and 12 submitted to Ohio EPA in November 1990, the levels of metals are below the land disposal restriction requirements. Based on the TCLP results and the fixed material assessment used for Ponds 4, 5, and 7, CWM proposes using the same qualitative assessment for ponds 11 and 12, reducing reagent, if necessary, to produce a dry soil like material, even eliminating reagent if material is already dry and soil like. This will minimize dusting due to the presence of excess fine reagent material.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please call Steve Lonneman at (419) 547-7791.

Sincerely,

CHEMICAL WASTE MANAGEMENT, INC.



F.G. Nicar
General Manager

FGN/MFRC/tr
Attachments

Mr. Donald R. Schregardus, Director
Ohio Environmental Protection Agency
June 28, 1991
Page 3

cc: Ed Kitchen, OEPA, Central Office (Federal Express)
Thomas Crepeau, OEPA, Central Office
Randy Meyers, OEPA, Central Office
Charles Hull, OEPA, NWDO
Jeff Steers, OEPA, NWDO
Bob Heitman, CWM Princeton
Ron Youse, CWM Princeton
Steve Lonneman
Jay Skabo
Jim Greeley, ENRAC Princeton
Todd Milne, ENRAC Princeton
Larry Patton, ENRAC Princeton
Mike Mullen, ENRAC
Jim Saric, USEPA, Region V
Agency Correspondence



Qualitative Assessment for Removal of
Fixed Sludge to Stock Pile

To determine if the sludges in Ponds 4, 5, and 7 have been fixed in accordance with the Closure Plan submitted to OEPA by Chemical Waste Management in their Phase I Submission of September, 1984, the following steps will be followed:

- A. An assessment will be made of the volume of sludge to be fixed in a specific area.
- B. The appropriate proportion for the reagent to the following ratios by weight will be added.

Calcium Oxide	15 parts
Cement/Kiln Dust	5 parts
Sludge	100 parts

- C. Mixing will continue until the material has the look of "damp top soil", additional reagent material being added until this is achieved.
- D. The material, when outloaded, should be able to be handled by a backhoe in a similar manner to earth; i.e., be discreetly separated in lumps, should not "flow" over the bucket, be held in the bucket as solids.
- E. There should be no free liquid.
- F. When placed in a pile by the backhoe, a normal angle of repose 30-45° should be achieved by the material without slumping.

Additionally, a quantitative record will be kept of weight of reagent applied to material stock piled. With the appropriate mix ratios, the weight of reagent to weight of material stock piled should be approximately 6:1.



AQUA TECH

ENVIRONMENTAL CONSULTANTS, INC.

LABORATORY ANALYSIS REPORT
P.O. Box 70, Melmore, Ohio 44641 419-397-2654 or 397-2222
P.O. Box 430, 181 South Main Street, Marion, Ohio 43302 614-382-5991
936 North Horner Blvd., Sanford, North Carolina 27330

DATE REC'D. 10-18-1990

DATE REP'D. 10-24-1990

P.O. # F648379

LAB NO. 10-17673-90
CLIENT NO. J0039

SAMPLE LOCATION FOND 11 SLUDGE/ SP11
SAMPLED BY W. ROORBACK

DATE SAMPLED 10-17-1990
TIME SAMPLED 10:30

FRED LEAR
CHEMICAL WASTE MANAGEMENT
3956 ST. RT. 412
VICKERY OH 43464

COMMENTS:

STORET

ANALYSIS

RESULT

UNITS

DATE OF ANALYSIS

00016 TCLF EXT FOR METALS:
01002 ARSENIC, TOTAL, AS
01007 BARIUM, TOTAL, BA
01027 CADMIUM, TOTAL, CD
01034 CHROMIUM, TOTAL, CR
51 LEAD, TOTAL, PB
50 MERCURY, TOTAL, HG
01147 SELENIUM, TOTAL, SE
01077 SILVER, TOTAL, AG

--
0.03
0.16
<0.01
<0.02
<0.03
<0.002
<0.02
<0.01
MG/L
MG/L
MG/L
MG/L
MG/L
MG/L
MG/L
MG/L

10-19-1990
10-23-1990
10-23-1990
10-23-1990
10-23-1990
10-23-1990
10-23-1990
10-22-1990
10-23-1990
10-23-1990

LABORATORY CERTIFICATION # 4053

SIGNED

**AQUA TECH**

ENVIRONMENTAL CHEMISTRY, INC.

LABORATORY
P.O. Box 76, Mentor, Ohio 44061 419-357-2657 or 357-2222
P.O. Box 436, 181 South Main Street, Mentor, Ohio 43302 (419) 382-5997
936 North Harbor Blvd., Sanford, North Carolina 27336
LABORATORY ANALYSIS REPORT

DATE REC'D. 10-18-1990

DATE REP'D. 10-24-1990

P.O.# P-40539

LAB NO. 10-17674-90

CLIENT NO. 10539

SAMPLE LOCATION POND 12 SLUDGE/SF 12

SAMPLED BY W. ROORBACK

DATE SAMPLED 10-17-1990

TIME SAMPLED 10:35

FRED LEAR
CHEMICAL WASTE MANAGEMENT
3956 ST. RT. 412
VICKERY OH 43464

COMMENTS:

STORET

ANALYSIS

RESULT

UNITS

DATE OF ANALYSIS

00016	TCLP EXT FOR METALS:	--	--	10-19-1990
01002	ARSENIC, TOTAL, AS	0.04	MG/L	10-23-1990
01007	BARIUM, TOTAL, BA	0.14	MG/L	10-23-1990
01027	CADMIUM, TOTAL, CD	0.01	MG/L	10-23-1990
01034	CHROMIUM, TOTAL, CR	0.06	MG/L	10-23-1990
51	LEAD, TOTAL, PB	0.07	MG/L	10-23-1990
1.00	MERCURY, TOTAL, HG	<0.002	MG/L	10-22-1990
01147	SELENIUM, TOTAL, SE	<0.02	MG/L	10-23-1990
01077	SILVER, TOTAL, AG	<0.01	MG/L	10-23-1990

LABORATORY CERTIFICATION # 4053

SIGNED

COPY DISTRIBUTION: WHITE - CLIENT

YELLOW - FILE

AQUA TECH ENVIRONMENTAL CONSULTANTS, INC.
RESULT SHEET

Customer Name: CWM VICKERY FACILITY
Sample Type: Soil
Sample Description: POND 11 SLUDGE/SP11
Analysis Performed: TCLP Analysis
Analysts: REB, WEB

Alec No.: 15315
Date Received: 10/17/90
Date Extracted: 10/24/90
Date Analyzed: 10/25/90
Project No.: P540373

COMPOUND	CONCENTRATION ng/L (PPM)
Benzene	0.255
Carbon Tetrachloride	< 0.005
Chlordane	< 0.015
Chlorobenzene	0.330
Chloroform	1.60
o-Cresol	< 0.010
m & p Cresol	< 0.020
2,4-D	< 0.040
1,4-Dichlorobenzene	< 0.002
1,2-Dichloroethane	0.058
1,1-Dichloroethylene	< 0.005
2,4-Dinitrotoluene	< 0.004
Endrin	< 0.004
Heptachlor	< 0.002
Heptachlor Epoxide	< 0.003
Hexachlorobenzene	< 0.002
Hexachlorobutadiene	< 0.003
Hexachloroethane	< 0.003
Lindane	< 0.003
Methoxychlor	< 0.010
Methyl Ethyl Ketone	< 0.050
Nitrobenzene	< 0.002
Pentachlorophenol	< 0.010
Pyridine	0.051
Tetrachloroethylene	0.578
Toxaphene	< 0.100
Trichloroethylene	0.150
2,4,5-Trichlorophenol	< 0.010
2,4,6-Trichlorophenol	< 0.003
2,4,5-TP (Silvex)	< 0.040
Vinyl Chloride	< 0.010

AQUA TECH ENVIRONMENTAL CONSULTANTS, INC.
RESULT SHEET

Customer Name: CWM VICKERY FACILITY
Sample Type: Soil
Sample Description: POND 12 SLUDGE/SP12
Analysis Performed: TCLP Analysis
Analysts: REB, WEB

Ated No.: 18317
Date Received: 10/17/90
Date Extracted: 10/24/90
Date Analyzed: 10/26/90
Project No.: P640378

COMPOUND	CONCENTRATION mg/L (PPM)
Benzene	< 0.005
Carbon Tetrachloride	< 0.005
Chlordane	< 0.015
Chlorobenzene	0.075
Chloroform	< 0.005
o-Cresol	< 0.010
m & p Cresol	< 0.020
2,4-D	< 0.040
1,4-Dichlorobenzene	< 0.002
1,2-Dichloroethane	< 0.005
1,1-Dichloroethylene	< 0.005
2,4-Dinitrotoluene	< 0.004
Endrin	< 0.004
Heptachlor	< 0.002
Heptachlor Epoxide	< 0.003
Hexachlorobenzene	< 0.002
Hexachlorobutadiene	< 0.003
Hexachloroethane	< 0.003
Lindane	< 0.003
Methoxychlor	< 0.010
Methyl Ethyl Ketone	< 0.050
Nitrobenzene	< 0.002
Pentachlorophenol	< 0.010
Pyridine	< 0.010
Tetrachloroethylene	< 0.005
Toxaphene	< 0.100
Trichloroethylene	< 0.005
2,4,5-Trichlorophenol	< 0.010
2,4,6-Trichlorophenol	< 0.005
2,4,5-TP (Silvex)	< 0.040
Vinyl Chloride	< 0.010

AQUA TECH ENVIRONMENTAL CONSULTANTS, INC.
QUALITY CONTROL DATA

FOR
LABNUMBERS 17673-90 TO 17675-90

LAB NO. STORET ANALYSIS

RSLT #1 RSLT #2 SPIKE SPIKE & R UNITS
RSLT

PAGE 1 OF 1 PAGES

17673-90	01002	ARSENIC, TOTAL,	0.031	--	0.100	0.123	92	MG/L
17675-90	01002	ARSENIC, TOTAL,	0.034	--	0.100	0.148	114	MG/L
17674-90	01002	ARSENIC, TOTAL,	0.038	--	0.100	0.128	90	MG/L
17673-90	01147	SELENIUM, TOTAL	0.000	--	0.045	0.0427	95	MG/L
17673-90	01147	SELENIUM, TOTAL	0.000	--	0.065	0.0595	92	MG/L
17675-90	01147	SELENIUM, TOTAL	0.000	--	0.045	0.0470	104	MG/L
17675-90	01147	SELENIUM, TOTAL	0.000	--	0.065	0.0628	97	MG/L
17674-90	01147	SELENIUM, TOTAL	0.000	--	0.045	0.0352	78	MG/L
17674-90	01147	SELENIUM, TOTAL	0.000	--	0.065	0.0516	79	MG/L
17673-90	01007	BARIUM, TOTAL,	0.15	--	10.00	9.68	95	MG/L
17675-90	01007	BARIUM, TOTAL,	0.28	--	5.00	5.11	97	MG/L
17674-90	01007	BARIUM, TOTAL,	0.14	--	5.00	5.16	100	MG/L
17673-90	01027	CADMIUM, TOTAL,	0.00	--	1.00	1.10	110	MG/L
17675-90	01027	CADMIUM, TOTAL,	0.00	--	1.00	1.07	107	MG/L
17674-90	01027	CADMIUM, TOTAL,	0.01	--	1.00	1.05	104	MG/L
17673-90	01034	CHROMIUM, TOTAL	0.00	--	5.00	5.28	106	MG/L
17675-90	01034	CHROMIUM, TOTAL	0.00	--	5.00	4.31	86	MG/L
17674-90	01034	CHROMIUM, TOTAL	0.06	--	5.00	5.14	102	MG/L
17673-90	01051	LEAD, TOTAL, PB	0.02	--	5.00	5.27	105	MG/L
17675-90	01051	LEAD, TOTAL, PB	0.01	--	5.00	5.69	114	MG/L
17674-90	01051	LEAD, TOTAL, PB	0.07	--	5.00	5.15	102	MG/L
17673-90	01077	SILVER, TOTAL,	0.00	--	1.00	0.977	98	MG/L
17675-90	01077	SILVER, TOTAL,	0.002	--	1.00	0.989	99	MG/L
17674-90	01077	SILVER, TOTAL,	0.004	--	1.00	0.982	98	MG/L
17673-90	71900	MERCURY, TOTAL,	0.0	--	2.0	2.1	105	UG/L
17674-90	71900	MERCURY, TOTAL,	0.0	--	2.0	2.0	100	UG/L
17675-90	71900	MERCURY, TOTAL,	0.0	--	2.0	2.2	110	UG/L



Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149
(614) 644-3020
FAX (614) 644-2329

George V. Voinovich
Governor

July 30, 1991

Mr. F.G. Nicar
Chemical Waste Management, Inc.
3956 State Route 412
Vickery, Ohio 43464

RE: Closure Plan Field Changes for Ponds 11 and 12.
June 28, 1991 Revision to March 18, 1991 letter.

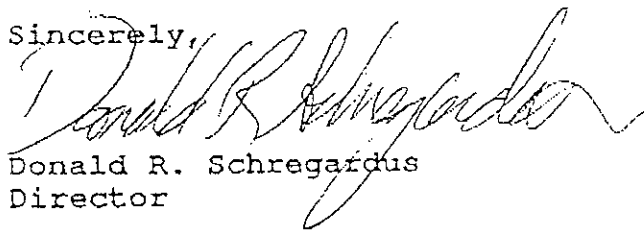
Dear Mr. Nicar:

On July 2, 1991, I received a copy of a letter revising the request for field changes (dated March 18, 1991) to the closure plan for Ponds 11 and 12 at your facility. These revised field changes dealt with the fixation and stabilization of the sludges contained in Ponds 11 and 12 and request some flexibility in the application of the reagents to these sludges according to the physical state of the sludge. The revised proposal as stated by Chemical Waste Management, Inc. in its July 2, 1991 letter to me is approved with the following condition:

The physical characteristic of the sludges from Ponds 11 and 12 as determined visually (with or without treatment) shall meet the same physical characteristics as the treated sludges from the closure of Ponds 4, 5, and 7.

If you have any questions or wish to discuss this matter in further detail, please contact Chuck Hull, Ohio EPA, NWDO (419) 352-8461, or Edward A. Kitchen, Ohio EPA, Central Office (614) 644-2956.

Sincerely,


Donald R. Schregardus
Director

DRS/RM/pas

cc: Chuck Hull, Ohio EPA, NWDO
Jeff Steers, Ohio EPA, NWDO
Randy Puckett, Ohio EPA, NWDO
Edward Kitchen, Ohio EPA, DSHWM
Paul Vandermeer, Ohio EPA, DSHWM



Chemical Waste Management, Inc.

3956 State Route 412
Vickery, Ohio 43464
419/547-7791

November 11, 1991

Sirrline Environmental Consultants
100 Nassau Park Boulevard
Princeton, NJ 08540

Attn: Mr. John Snowden

Subject: Backfill Ponds 11 and 12

Dear John:

Reference the backfilling of Ponds 11 and 12. Appendix V of the Closure Plan specifies loose lifts of 8" and compaction to 95% of maximum dry density with $\pm 3\%$ optimum moisture as determined by the Standard Proctor Compaction Test (ASTM D-698).

Because of the depth of fill necessary, the specification is to be modified with the final three feet of back fill to be placed to the above specification.

Fill material below the final three feet can be placed by equipment in 12 inch lifts and compacted with equipment traffic and sheeps foot roller. No testing will be done on these lifts unless observation indicates that compaction effort is not being applied.

If you have any questions, please contact me.

Yours sincerely,

CHEMICAL WASTE MANAGEMENT, INC.

A handwritten signature in dark ink, appearing to read 'M.F.R. Curry'.

Michael F.R. Curry
Engineering Manager

MFRC/tr

cc: Glen Fitkin (Bowser Morner)
Fred Nicar
Bill Roorback
Mike Mullen (ENRAC)
Bob Heitman
Jerry Duggan
Richard Habrukowich



Chemical Waste Management, Inc.

3956 State Route 412
Vickery, Ohio 43464
419/547-7791

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 856 439 163

June 16, 1992

Mr. Randy Meyers
Ohio Environmental Protection Agency
P.O. Box 1049
1800 WaterMark Drive
Columbus, OH 43266-0149

Subject: Field Change for Closure Plan
for Ponds 11 and 12

Dear Mr. Meyers:

This is to confirm the telephone conversation between Mr. Paul Vandermeer of OEPA and Mr. Michael Curry of Chemical Waste Management, on June 12, 1992 regarding a minor field change to the specification for backfilling ponds 11 and 12 which are to be clean closed, and become a grassy field.

As discussed, it was agreed that as the area is to be graded to provide natural drainage only and used as a green field, the area will be backfilled, and the top three feet will be placed in compacted lifts of one foot. The closure plan had stated that six inch lifts would be used. These lifts will be tested for compaction to 95% of maximum dry density at $\pm 3\%$ of the optimum moisture content as determined by the Standard Practice Compaction Test (ASTM D-698). The final graded surface will be disced and seeded.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please do not hesitate to call me at (419) 547-7791.

Sincerely,

CHEMICAL WASTE MANAGEMENT, INC.

F.G. Nicar
General Manager

FGN/tr

cc: Charles Hull, OEPA

Mr. Randy Meyers
Ohio Environmental Protection Agency
June 16, 1992
Page 2

bcc: John Snowden
Bill Roorback
Angel Reyes
Doug Martin
Bob Heitman
Jay Skabo
Agency Correspondence



State of Ohio Environmental Protection Agency

Northwest District Office

347 North Dunbridge Road

P.O. Box 466

Findling Green, Ohio 43402-0466

352-8461 FAX (419) 352-8468

George V. Voinovich

Governor

RE: Ponds 11 and 12
OHD 020 273 819
Hazardous Waste
Sandusky County

February 13, 1992

Mr. Michael Curry
Chemical Waste Management
3956 State Route 412
Vickery, Ohio 43464

Dear Mr. Curry:

The Ohio Environmental Protection Agency (Ohio EPA) has conducted final review of analysis of samples obtained from ponds 11 and 12, and the retention pond to the east of the closure cell located at 3956 State Route 412 Vickery, Ohio. Sample analysis submitted to the Ohio EPA by Chemical Waste Management (CWM) indicates that contamination levels in ponds 11, 12 and the retention pond are below background levels and/or below detection limits.

CWM is no longer required by the Ohio EPA to handle precipitation that may accumulate in ponds 11, 12 and the retention pond as hazardous waste.

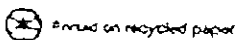
If you should have any further questions please feel free to contact me.

Sincerely,

Brent Kuenzli
Division of
Hazardous Waste Management

/dlh

pc: Marybeth Cohen, DWPC, NWDO
NWDO File





Ohio Environmental Protection Agency

West District Office

347 North Dunbridge Road

P.O. Box 466

Bowling Green, Ohio 43402-0466

(419) 352-8461 FAX (419) 352-8468

George V. Voinovich
GovernorRe: Sandusky County
Chemical Waste Management, Inc.

March 6, 1992

Mr. F. G. Nicar, General Manager
Chemical Waste Management, Inc.
3956 State Route 412
Vickery, Ohio 43464

Dear Mr. Nicar:

We have received the priority pollutant scan of the stormwater that has accumulated in pond #12. Pond #12 has been through closure activities and is no longer regulated through the Division of Hazardous Waste Management as a hazardous waste site.

The storm waters which have collected (since closure) are proposed to be pumped into surface waters to prepare the site for re-grading and to eliminate the future ponding of storm water. These waters have collected due to non-contact storm water run-on, and a review of the priority pollutant scan indicates that these waters have not been contaminated with pollutants of any significance. The reported value of 760 mg/l for total suspended solids (TSS) was very high. Three additional TSS samples were tested on March 3, 1992, after allowing time for settling. The results of the TSS resampling were well below the recommended limits (30 mg/l, 30 day average and 45 mg/l, daily).

Discharge of the stormwater is to take approximately two to four weeks. The pumping of the stormwater which has collected in the pond to the surface waters is acceptable at this time.

If there are any questions, please advise.

Yours truly,

Paul G. Brock, P.E.
Group Leader, Permits
Division of Water Pollution Control

/dlh

pc: Chuck Hull, DHWM, NWDO
Michael Curry, CWM
NWDO File



Chemical Waste Management, Inc.

3956 State Route 412
Vickery, Ohio 43464
419/547-7791

September 22, 1992

Mr. John Snowden
SEC Donohue
100 Nassau Park Blvd.
Princeton, NJ 08540

Subject: Backfill - Final One Foot
Ponds 11 and 12

Dear Mr. Snowden:

CWM Remedial Services Group (East) have recently completed the backfilling of Ponds 11 and 12 by placing the final one foot lift of clay. This lift was compacted according to specification except for the area bounded by Northings 770W and 990W and Eastings 97N and 99N; this was completed to 92% maximum dry density based on Standard Proctor.

As CWM does not intend to build in this area and the freeze thaw cycle this coming winter will affect the compaction, CWM Vickery is prepared to accept this variation. I have also spoken to Ohio EPA (Mr. Jeff Steers) who has indicated that, because the closure is a clean closure, the EPA have no real concerns provided the section is shown as an exception in the final certification.

If you have any questions, please call.

Yours sincerely,

CHEMICAL WASTE MANAGEMENT, INC.

A handwritten signature in dark ink, appearing to read 'MFR Curry', with a horizontal line underneath.

Michael F.R. Curry
Engineering Manager

MFRC/tr

cc: Bill Roorback
John Evans (RSG East)
Jay Skabo
Richard Hoppenjans (Bowser Morner)

CLOSURE PLAN FOR PONDS 11 AND 12

VICKERY, OHIO FACILITY

July 3, 1985 .

Chemical Waste Management
3003 Butterfield Road
Oak Brook, Illinois 60521

FOREWORD

Chemical Waste Management, Inc. (CWM) has prepared this Closure Plan for Ponds 11 and 12 at its Vickery, Ohio Facility in accordance with the requirements of: (1) Paragraph 28(B) (1) of the Consent Decree entered between the State of Ohio and CWM (herein referred to as the Ohio Decree); (2) Paragraph I of the Consent Agreement and Final Order entered between USEPA and CWM (herein referred to as the Federal Consent Agreement); (3) 40 CFR 265.228; and (4) OAC 3745-66-12.

Besides the completion of this Closure Plan for Ponds 11 and 12, CWM has prepared a similar Closure Plan for and is currently performing closure activities for Ponds 4, 5, and 7 at the Vickery Facility. The closure of these Ponds is described in two volumes submitted to USEPA and Ohio EPA in September 1984 pursuant to Paragraph 28(A) of the Ohio Decree. Phase I of the Closure Plan for Ponds 4, 5, and 7, Volume I, which has been approved, describes the physical operations involving the chemical fixation of the sludges and the removal and stockpiling of these materials in the contained Closure Area. These successful operations are ongoing with the completion of Phase I estimated in August 1985.

Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II, describes the design details of the Closure Cell to be constructed on the backfilled area of Ponds 4, 5, and 7. Phase II was revised in May and June 1985 to incorporate the new requirements

of the 1984 Solid and Hazardous Waste Amendments to RCRA and is currently under final review by USEPA and Ohio EPA.

CWM has requested USEPA's approval of the Closure Cell pursuant to 40 CFR 761.75 to dispose of polychlorinated biphenyls (PCBs), contaminated materials from the closure of Ponds 4, 5, and 7, and the decommissioning of the oil reclamation system, and for riprap from Pond 11.

Many support documents were submitted to USEPA and Ohio EPA with the Closure Plan for Ponds 4, 5, and 7. Because CWM proposes to fix the sludge from Ponds 11 and 12 in the same manner as it used in fixing the sludge from Ponds 4, 5, and 7 and will utilize the Closure Cell to be constructed on the backfilled area of Ponds 4, 5, and 7 for the materials generated from closure of Ponds 11 and 12, these documents will also support this Closure Plan.

A complete listing of referenced documents are described below in this foreword. These reference documents include the following:

- In 1984, pursuant to Paragraph 28(A) of the Ohio Decree, Battelle Columbus Laboratories completed a chemical evaluation of several fixation reagents for use with the Vickery sludge. The fixation reagent formula recommended and approved by Ohio EPA in November 1984 includes 100 parts sludge, 15 parts calcium oxide (quicklime), and 0 to 20 parts cement kiln dust.
- In 1984, pursuant to Paragraph 28(A) of the Ohio Decree, CWM completed a pilot study using the recommended, and later approved, reagent formula. The fixation method was successful, and the material was tested for its physical properties by Golder Associates to evaluate its characteristics for placement in the Closure Cell. This report evaluation concluded that the fixed material was acceptable as fill material in the Closure Cell.

- In 1984 and 1985, Battelle Columbus Laboratories conducted a leachate and liner compatibility evaluation using a modification of USEPA Method 9090 to evaluate the effects of leachate generated from raw sludge on the proposed Closure Cell liners. The modification utilized raw sludge leachate rather than fixed material leachate presenting a more rigorous and severe test. The test concluded that the liners were compatible with the leachate.
- In 1985, CWM, through its consultants, Golder Associates and Environmental Testing and Certification (ETC), is completing work associated with Paragraph H of the Federal Consent Agreement involving groundwater monitoring activities at the Facility. This work includes a waste characterization of the aqueous material present in Ponds 11 and 12 and a new series of groundwater monitoring wells around Ponds 11 and 12 to be used until these Ponds are closed pursuant to 40 CFR 265.228. It also included wells around the Closure Cell described in Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II. Since CWM will remove all waste materials from Ponds 11 and 12 and dispose of the fixed sludge, contaminated soils, and riprap generated from the closure of Ponds 11 and 12 in the Closure Cell to be constructed, CWM does not intend to perform post-closure groundwater monitoring around Ponds 11 and 12, rather around the Closure Cell.

The above reports provided information in support of the sludge fixation method, Closure Cell design, and soil sampling to be conducted during the closure of Ponds 11 and 12. Because CWM has previously submitted these reports with its Closure Plan for Ponds 4, 5, and 7 and the operations discussed for closure of Ponds 11 and 12 will be conducted similarly, they are not reproduced.

LIST OF SUPPORTIVE DOCUMENTS

1. Battelle Columbus Laboratory. Assessment of Liner Compatibility with Leachate Extracted from Vickery, Ohio Sludge. May 1985.
2. Battelle Columbus Laboratory. Assessment of Waste Sludge Stabilization Alternatives. (Fixation Study). July 1984.
3. Clement Associates, Inc. Volume I and Volume II, Closure Plan for Ponds 4, 5, and 7. September 1984.
4. Clement Associates, Inc. (Volume II) and Golder Associates (Appendices I and II). Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II, including Appendix I and Appendix II, Revision No. 1. May 1985.
5. Golder Associates. Addendum No. 1 to Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II, Revision No. 2. June 1985.
6. Golder Associates. Report on Physical Property Testing Chemically Fixed Material from the Wet Well. September 1984.
7. Golder Associates. The Ground Water Program Workplan, Chemical Waste Management, Inc., Vickery, Ohio Facility. June 1985.

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Appendix I--Pre-Closure Layout

Appendix II--Closure Area Layout

Appendix III--Closure Area Layout After Completion of Step 3

Appendix IV--Closure Area Layout After Completion of Step 5

Appendix V--Final Grading Plan

Appendix VI--Personnel Health and Safety Plan

Appendix VII--Soil Sampling Plan

INTRODUCTION

This document constitutes the Closure Plan for Ponds 11 and 12 at Chemical Waste Management's facility near Vickery, Ohio, as required by Paragraph 28(B) (1) of the Consent Decree entered by the Court of Common Pleas in Sandusky County, Ohio, between the State of Ohio, Waste Management, Inc. (WMI), and Chemical Waste Management, Inc. (CWM), and Paragraph I of the Consent Agreement and Final Order entered between USEPA and CWM.

In describing closure for Ponds 11 and 12, several assumptions are made relating to the current Closure Plan for Ponds 4, 5, and 7 and the development of the secure Closure Cell. These assumptions and conditions are:

- The Closure Cell will have been constructed with interim cover, and the stockpiled materials from Ponds 4, 5, and 7 have been placed in the Cell before material from Ponds 11 and 12 is placed in the Closure Cell;
- The groundwater monitoring system for the Closure Cell has been implemented pursuant to Appendix I of Phase II of the Closure Plan for Ponds 4, 5, and 7, as addended;
- Sludges in Ponds 11 and 12 will be fixed using the fixation method and reagent formula, procedures, and equipment that have been operationally demonstrated in the closure of Ponds 4, 5, and 7;
- All materials to be removed from Ponds 11 and 12 will be placed in the Closure Cell; the volumes of materials to be placed in the Closure Cell and the final cover system and grading plan for the Cell are described in Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II (revised May 8, 1985).

Consequently, this document assumes regulatory approval of the two-phased Closure Plan for Ponds 4, 5, and 7 in describing

closure for Ponds 11 and 12. In addition, this document refers to descriptions of procedures and equipment employed during the closure of Ponds 4, 5, and 7, where they are applicable to the closure of Ponds 11 and 12.

CLOSURE OPERATIONS PLAN SUMMARY

Facility Description

Ponds 11 and 12 were used to store and partially treat aqueous wastes. After storage and treatment in these ponds, wastes were filtered and deepwell injected.

Facility operations are currently dedicated to reducing the inventory of wastes held in Ponds 11 and 12. CWM anticipates that the inventory volume will be reduced to 50 million gallons by the end of 1985 and at least one of the Ponds will be ready for sludge fixation shortly thereafter with the remaining Pond undergoing final aqueous inventory depletion.

The location of Ponds 11 and 12 is shown in the Pre-Closure Plan in Appendix I. Other features shown on this drawing are:

- The Closure Cell (with interim cover)
- The Waste Treatment System, which will be expanded after receiving separate regulatory approval, so it can store and treat (in closed tanks) all wastes received at the facility before they are deepwell disposed, thus replacing Ponds 11 and 12
- Various support facilities
- The existing topography of the site

Closure Operations Sequence

To close Ponds 11 and 12 safely and effectively, CWM proposes the following ten-step operations sequence:

1. Transfer liquids from Pond 11 to Pond 12 where they will be held and treated before being filtered and disposed of by deepwell injection.

2. Mobilize the necessary equipment and personnel, and prepare an operating area for closure activities.
3. Chemically fix, in place, the sludges in Pond 11 using the same reagent formula and procedures adopted for closure of Ponds 4, 5, and 7; and stockpile within the Pond fixed sludges and riprap removed from the sides of the Pond.
4. Remove remaining liquids from Pond 12, using on-site filtration and deepwell injection.
5. Chemically fix, in place, the sludges in Pond 12 using the same formula and procedures in Step 3, and stockpile fixed sludges and riprap within the Pond.
6. Remove interim cover on the Closure Cell and place the stockpiled materials from Ponds 11 and 12 in the Closure Cell.
7. Remove contaminated soil--as determined by soil sampling and analysis--from the bottom and sides of Ponds 11 and 12 and place in the Closure Cell.
8. Construct the final cover of the Closure Cell, including a gas collection and relief system, a composite synthetic membrane and clay soil liner, a drain layer, and a protective vegetative cover.
9. Regrade pond area by leveling the dikes and using clean soils from the on-site Borrow Area, if needed.
10. Demobilize all closure-related equipment and facilities.

Schedule

Figure 1 provides the schedule for the earliest possible closure of Ponds 11 and 12. The schedule shown in this figure assumes that USEPA and OEPA approve this Closure Plan by December 15, 1985, and that the waste inventory in Ponds 11 and 12 will have been reduced to 50 million gallons by the end of 1985. Assuming approval, the schedule shows that mobilization and preparation of an operating area for closure activities (Step 2) will begin in January 1986. This schedule is also compatible with the delayed Phase II Closure Schedule for Ponds 4, 5, and 7 since the removal of the interim cover and placement of fixed materials into the Closure Cell (Step 6) will start at the beginning of September 1986, the estimated date of completion of the closure activities for Ponds 4, 5, and 7. This schedule also enables completion of the Closure Plan before the winter season when weather conditions would interfere with the proper compaction of clay in the construction of the final cover.

If USEPA and OEPA do not approve this Closure Plan by December 15, 1985, all closure activities (except Steps 1 and 4) will be delayed. Steps 1 and 4, which involve reduction of inventory and transfer of liquids from the Ponds, are independent of regulatory approval of this Plan, and, consequently, their completion is expected to occur in accordance with the schedule shown in Figure 1. It is important to note that the schedule for timely completion of all activities concerning the Closure Cell (Steps 6 through 10) in this Plan is subject to regulatory

FIGURE 1
CLOSURE OPERATIONS SCHEDULE

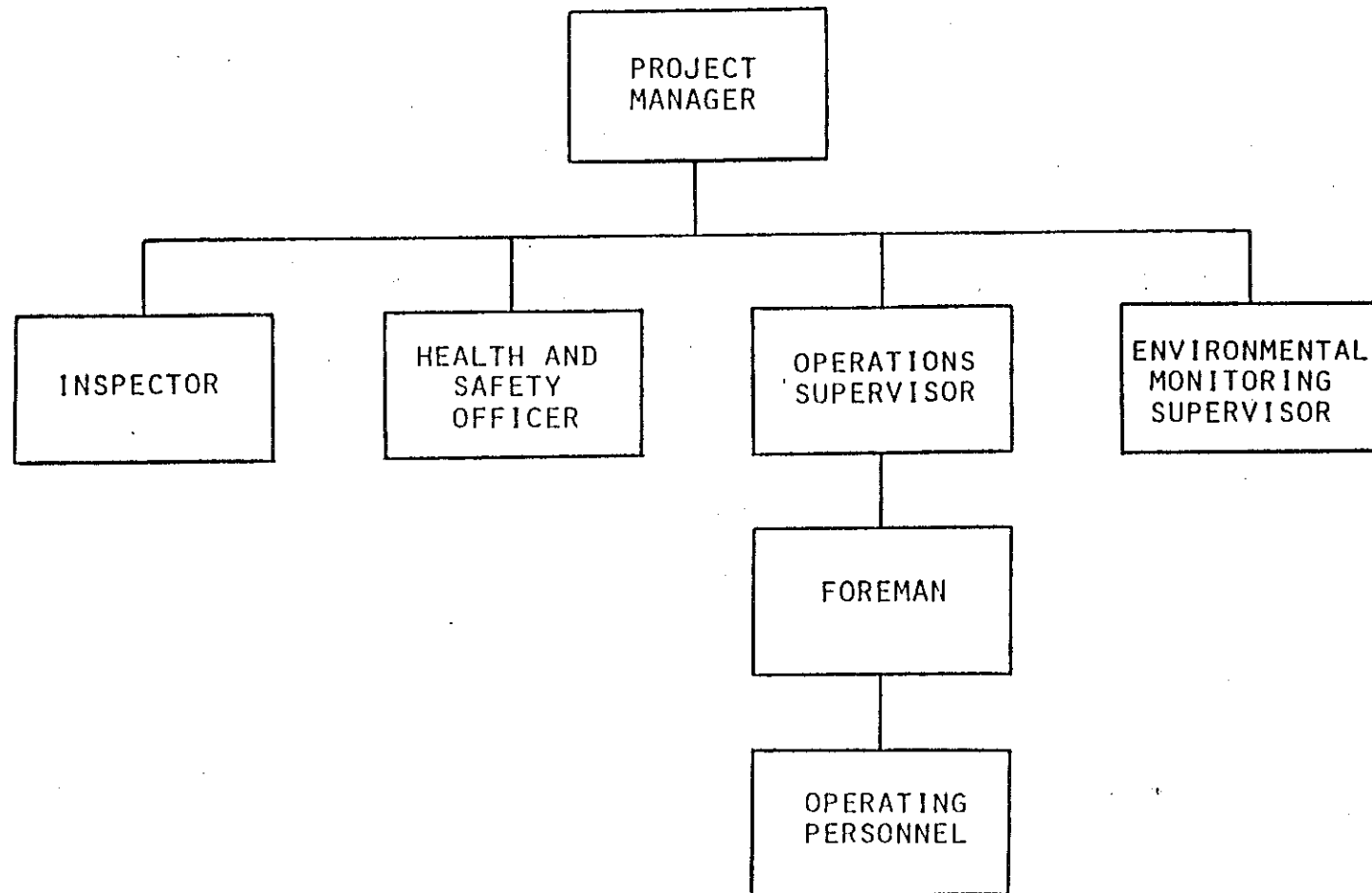
1986												1987				
J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
<div> <div>TRANSFER LIQUIDS FROM POND 11 (STEP 1)</div> <div>MOBILIZE AND PREPARE OPERATING AREA (STEP 2)</div> <div>FIX SLUDGES AND STOCKPILE MATERIALS IN POND 11 (STEP 3)</div> <div>TRANSFER LIQUIDS FROM POND 12 (STEP 4)</div> <div>FIX SLUDGES AND STOCKPILE MATERIALS IN POND 12 (STEP 5)</div> <div>REMOVE INTERIM COVER AND PLACE STOCKPILED MATERIALS INTO CLOSURE CELL (STEP 6)</div> <div>REMOVE CONTAMINATED SOILS TO CLOSURE CELL (STEP 7)</div> <div>CONSTRUCT CLOSURE CELL FINAL COVER (STEP 8)</div> <div>REGRADE POND AREA (STEP 9)</div> <div>DEMOBILIZE OPERATING AREA (STEP 10)</div> </div>																

approval, construction, and completion of the Closure Cell, as described in Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II (revised May 8, 1985).

Project Management

Figure 2 displays the organization chart for the implementation and management of the Closure Plan. Overall management of the Closure Plan will be entrusted to the resident (on-site) CWM Project Manager who will have the responsibility of assuring compliance with the approved Closure Plan. The CWM Project Manager will be assisted by the supervisory personnel delineated in Figure 2. This organization chart is an abbreviated form of the same organization and staffing involved in the closure of Ponds 4, 5, and 7.

FIGURE 2
ORGANIZATION CHART



DESCRIPTION OF OPERATING STEPS

This section describes the ten operating steps proposed to close Ponds 11 and 12 pursuant to 40 CFR 265.228(a)(7). Prior to initiation of closure of Ponds 11 or 12, all oily liquids on the surface of either pond will be removed by skimming and transported to off-site disposal. To the extent these oily liquids are contaminated with regulated quantities of PCBs, they will be disposed at a USEPA-approved facility.

Step 1: Transfer of Liquids from Pond 11

The first step in the operating sequence will be to remove liquids within Pond 11 by transferring them to Pond 12 or to filter and dispose of them directly by deepwell injection. These procedures are specified in Paragraph 24 of the Consent Decree.

Step 2: Mobilization and Preparation of an Operating Area

In this second step, all necessary equipment, material, and personnel will be mobilized, and a secured Operating Zone--an area that will be completely fenced to separate all closure activities--will be prepared. This will be accomplished by taking the following actions:

1. Constructing a fence around the Operating Zone and establishing a Decontamination and Equipment Repair Zone within the Operating Zone;

2. Removing some of the southern and portions of the southeastern walls of Pond 11 to provide a working platform for heavy equipment involved in the chemical fixation of sludges;
3. Reactivating the Reagent Loading Area used to close Ponds 4, 5, and 7, and establishing a Reagent Staging Area outside the Operating Zone;
4. Mobilizing all necessary equipment; and
5. Retraining of personnel involved in the closure activities.

The layout of the area at the completion of this step is shown in Appendix II.

The perimeter of the Operating Zone will be secured by a 6-foot-high chain link fence. A fence is assumed to have previously been constructed around the Closure Cell.

The Operating Zone will encompass Ponds 11 and 12 and a Decontamination and Equipment Repair Zone. All of the fixation and handling of fixed sludge will be performed in this zone. Equipment that has been used in this zone will not be permitted to leave the zone until it has been decontaminated. Personnel working in the Operating Zone during Steps 3, 5, 6, and 7 will be required to use protective clothing and equipment and follow special health and safety procedures outlined in Appendix VI. Additionally, these personnel will be required to pass through decontamination procedures when leaving the Operating Zone.

The Decontamination and Equipment Repair Zone will be located inside and between the eastern side of Pond 11 and the fence surrounding the Operating Zone. It will house a decontamination trailer and a personnel trailer to support the closure activities and will be used for on-site repair and major servicing of heavy equipment.

The fence near the Decontamination and Equipment Repair Zone will have an equipment gate. During Steps 3, 5, 6, and 7, only ingress into the Operating Zone will be allowed through this gate. Equipment that must leave the Operating Zone during these steps will have to be decontaminated in the Decontamination and Equipment Repair Zone (see Appendix II for location) and will exit through this gate. The equipment gate will be kept closed except when being used to provide entry or exit.

The decontamination trailer will house personnel decontamination facilities (showers, washroom, changing room). During Steps 3, 5, 6, and 7, personnel will be able to enter or exit the Operating Zone only through this trailer. During these steps, personnel entering the Operating Zone will have to be equipped with the safety apparel and equipment required by the Personnel Health and Safety Plan (see Appendix VI); and personnel exiting the Operating Zone will have to pass through decontamination procedures outlined in that Plan.

During equipment repair operations, all servicing personnel will have to enter the Operating Zone through the equipment gate and the decontamination trailer, respectively, and proceed

to the Decontamination and Equipment Repair Zone after being appropriately garbed. Servicing personnel will have to exit through the decontamination trailer and otherwise comply with procedures outlined in the Personnel Health and Safety Plan.

The Reagent Loading Area that was used during closure activities for Ponds 4, 5, and 7 will be reactivated. Its location is shown in Appendix II. Equipment to be reactivated includes the reagent storage silos, electronic scales, a baghouse dust collector, and forklift trucks. In addition, a reagent Staging Area will be established just outside the fence on the eastern portion of the Operating Zone (see Appendix II). The Staging Area will receive and store the filled, uncontaminated reagent applicators used in the sludge fixation process. The Staging Area is located so that the crane on the working platform inside the Operating Zone can pick up and deposit applicators in the Staging Area.

All necessary equipment required for the closure activities, including cranes, backhoes, wide-track bulldozers, and forklift trucks, will be mobilized, as well as the personnel protective clothing and equipment described in Appendix VI.

Finally, all personnel involved in the closure activities will be given the orientation training described in Appendix VI, which includes a general overview of the project and its purpose; a description of the facility and closure operating areas; and familiarization with alarm and communication systems, evacuation

procedures, and emergency equipment described in the site's Contingency Plan.

Step 3: Chemical Fixation of Sludges and Stockpiling of Materials in Pond 11

Once the Operating Area has been prepared and all necessary equipment, personnel, and materials have been mobilized, chemical fixation of the sludge in Pond 11 will begin. Sludge fixation will be conducted using the identical reagent formula, procedures, and equipment used in the closure of Ponds 4, 5, and 7 (for a detailed description, see Phase I of Closure Plan for Ponds 4, 5, and 7; Vickery, Ohio Facility; Volume I, September 14, 1984).

A swath of riprap between the working platform and the base of the emptied pond will be removed with a backhoe to allow equipment to move between these two areas. Next, wide-track bulldozers will push sludge covering the entire Pond bottom to the southern end of the Pond. This will provide a deeper effective sludge layer that will be more amenable to reagent application and mixing. The riprap remaining on the sides of the Pond will then be removed and stockpiled at the northern end of the Pond. Fixation of sludge will ensue by adding reagents (see later description) and mixing them into the sludge with a backhoe and/or wide-track bulldozer. As batches of sludge are fixed, they will be stockpiled at the northern end of the Pond with the riprap. Appendix III shows a layout of the Closure Area after completion of Step 3.

Introduction of reagents to the sludge to be fixed will be an important element of Step 3 of the Closure Plan. Not only must these reagents be introduced in a measured manner to achieve compliance with the approved formula, but they also must be added in a manner that minimizes the generation of dust. These objectives will be accomplished by utilizing the same procedures and equipment used for this purpose in closing Ponds 4, 5, and 7. These include the weighing procedures for adding reagents and the use of closed-top, steel bucket applicators. The applicators used here will also be fitted with protective, removable bag-covers over their legs for contamination control.

The applicators will be filled with reagent (either calcium oxide or cement kiln dust) in the Reagent Loading Area outside of the Operating Zone, as shown on the drawing in Appendix III. An applicator will be placed on one of two electronic scales. It will be connected to one of the reagent storage silos or bins by a flexible hose and pneumatically filled with reagent until it contains the designated weight. While being filled, the applicator also will be connected by a second flexible hose to a baghouse dust collector located adjacent to the reagent storage silos or bins. Both the filling and the collection of dust from the applicator will be through ports in its closed top. This method of filling the applicators and venting dust during the filling process will prevent the generation of dust from this materials-handling process.

After being filled, an applicator will be fitted with burlap bags around its legs and transferred by forklift truck to the clean Staging Area just outside the fence from the working platform. The crane will pick up the applicator, raise it over the fence into the Operating Zone, position it a few feet above the batch or area of sludge being fixed, and activate the mechanical gate to gently release the reagent onto the sludge. The crane will then return the applicator to a forklift truck on the other side of the fence for return to the Loading Area where it will be refilled with reagent. Should the Operating Zone foreman determine that the applicator legs have come into contact with the contaminated sludges in the Pond, the bag-cover will be removed prior to lifting the applicator out of the Operating Zone. Eight applicators will be used so that there can be a continuous delivery of reagents to the sludge fixation activity.

Typically, several applicator-loads of each of the reagents will have to be applied to a batch or area of sludge being mixed. Between the placement of each applicator-load, a backhoe or bulldozer will partially mix the load into the sludge in order to avoid leaving the reagent on the sludge surface where it could potentially generate dust. After the requisite amount of reagent has been applied, the batch or area of sludge will be thoroughly mixed until a soil-like product is formed. To minimize dust generation during initial mixing, CWM will employ gentle "kneading-like" mixing techniques with backhoes or bulldozer--

techniques that worked well during the closure of Ponds 4, 5, and 7. Some dust may also be generated by equipment working on fixed sludge after it sets and dries and by transport and stockpiling of fixed sludges. This problem will be controlled by wetting dust-generating surfaces, as necessary.

The mixing of reagents into the sludge will be performed until visual examination indicates that a uniform soil-like mixture has been achieved. This determination will be made by the inspector. This procedure has been operationally demonstrated during the closure of Ponds 4, 5, and 7.

Step 4: Removal of Liquids from Pond 12

Liquids remaining in Pond 12 will be removed and deepwell injected. These procedures are specified in Paragraph 24 of the Consent Decree.

Step 5: Chemical Fixation of Sludges and Stockpiling of Materials in Pond 12

Sludges will be fixed, and fixed materials and riprap will be stockpiled utilizing the same procedures and equipment used in Pond 11, as described in Step 3. A swath of riprap will be removed so that equipment can move into the pond; sludge will be pushed to the southern end; remaining riprap will be removed and stockpiled in the northern end of the Pond; sludges at the south end will be fixed and stockpiled at the northern end. Appendix IV shows a layout of the Closure Area after the completion of Step 5.

Step 6: Removal of Closure Cell Interim Cover and Placement of Stockpiled Materials from Ponds 11 and 12 into the Closure Cell

A description of the interim cover on the Closure Cell is presented in Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II (revised May 8, 1985). In this step, the top 18 inches of soil from the interim cover will be removed and temporarily placed on the eastern perimeter of the Closure Cell (until being reused for final cover). Next, a portion of the fence on the northeastern portion of the Operating Zone (i.e., between Pond 11 and the Closure Cell) will be removed to allow equipment to move stockpiled material from the Ponds to the Closure Cell. A temporary haul road between the Operating Zone and the Closure Cell will be constructed to accommodate the movement of vehicles that are transferring contaminated material between these two areas. This road will be closed to site traffic. The haul road will be constructed with a minimum of 12 inches of compacted soil placed over existing site roads in this area. Surface water control berms will be constructed along the sides of the haul road. Equipment will transfer the stockpiled materials from Ponds 11 and 12 over this road to the Closure Cell where it will be spread and compacted in layers. The drawing in Appendix IV shows the location of the haul road between the Operating Zone and the Closure Cell.

CWM does not intend to provide any segregated and recorded placement of materials from Ponds 11 and 12 in the Closure Cell. The relatively uniform characteristics of the fixed material

(i.e., solid, soil or soil-like materials) and the absence of discrete dissimilar materials suggest that there will be no need for or practical value in any further segregation.

Step 7: Removal of Contaminated Soil from Ponds 11 and 12 and Placement in the Closure Cell

The last materials that will be placed in the Closure Cell will be the potentially contaminated soils from the floors and inside walls of Ponds 11 and 12 and from the Decontamination and Equipment Repair Zone. A Soil Sampling Plan (see Appendix VII) has been developed to determine the extent to which these soils are contaminated and, consequently, how much and which soils should be removed and placed in the Closure Cell.

After completion of Step 7, all equipment that has been used in the operating areas will be decontaminated, and the temporary soil layer placed on the haul road will be removed and placed in the Closure Cell.

Throughout Steps 6 and 7, dust generation will be controlled by periodic wetting of the haul road, working areas, and other exposed-soil areas that may generate dust. Also, during Step 7, until the contaminated soils of Ponds 11 and 12 and the Decontamination and Equipment Repair Zone are removed and placed in the Closure Cell, water collected in the Operating Zone will be periodically removed and disposed by on-site deepwell injection. Similarly, rainwater collected on the working surface of the Closure Cell will be periodically removed and transferred

to the tank-based Waste Treatment System for subsequent deepwell disposal.

Step 8: Construction of the Closure Cell Final Cover

After completion of Step 7, a final cover will be placed on the Closure Cell. This final cover will be constructed pursuant to the description and design presented in Addendum No. 1 and Appendix II of Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II.

Step 9: Regrading of Pond Area with Clean Soil

Following the removal of contaminated soils from the ponds and construction of the final cover on the Closure Cell, all fencing surrounding the Operating Zone will be removed and the pond areas will be regraded with clean soils from the dikes and Borrow Area shown on the drawing in Appendix IV. These soils will be placed in loose lifts not to exceed 8 inches in depth and will then be compacted. The final grading plan and the design criteria for this regrading work are provided in Appendix V.

Soils will be transferred from the Borrow Area by trucks or scrapers traversing a haul road from the Borrow Area to the northern end of the Operating Zone (see Appendix IV). Because all contaminated material will have been removed from the ponds, the pond areas will be considered to be clean during this step. Therefore, during Step 9, equipment and personnel will be allowed to work in and exit from the zone without following the more stringent health and safety requirements outlined in Appendix VI.

Step 10: Demobilization of All Closure-Related Operating Areas

In this last operating step, all equipment, material, and areas dedicated specifically to the closure of Ponds 11 and 12 will be demobilized or deactivated, as appropriate. This includes removal of decontamination and office trailers, reagent storage silos, electronic scales, and the baghouse dust collector. Equipment such as the reagent applicator crane, backhoes, bulldozers, and forklift trucks will be demobilized or returned to other service at the site.

The inspector, as well as a registered professional engineer, will provide certification that closure of Ponds 11 and 12 are in compliance with this Closure Plan.

SUPPORT ACTIVITIES AND PROCEDURES

Security

No additional security provisions will be made specifically for Ponds 11 and 12 closure operations beyond those that already exist at the Vickery facility. These procedures are described in detail in Section F of the RCRA Part B Permit Application for the facility submitted to USEPA and OEPA on May 10, 1985. Access to the facility will continue to be controlled during operating hours for both routine and closure operations by the guard house at the main gate. Facility personnel and visitors will continue to park in the facility's designated areas.

The 6-foot chain link fence surrounding the Operating Zone will provide contamination control during closure activities and is not intended as a security measure (see Appendix II). The only access to the Operating Zone will be through an equipment gate and a decontamination trailer in the fence.

Personnel Health and Safety

Unique personnel health and safety procedures will be followed during Steps 3, 5, 6, and 7 of the Closure Plan. These are described in Appendix VI. The Health and Safety Officer will monitor compliance with Appendix VI procedures and will be authorized to direct correction of any deficiencies related to health or safety considerations and to stop or otherwise restrict closure activities, if necessary, until appropriate corrections are made.

Environmental Monitoring

All runoff from the Operating Zone will be contained and managed as contaminated wastes. Thus, any potentially contaminated surface water will be chemically fixed along with the sludges from the Ponds; or it will be pumped, filtered, and deepwell disposed (depending on when precipitation occurs in the sequence of closure). In addition, runoff from the clean reagent applicator Staging Area just outside the Operating Zone will drain into the pond areas and will be managed as contaminated waters. Therefore, no special monitoring of surface waters will be needed or performed under the Closure Plan. CWM will rely on the surface water monitoring and reporting requirements of Paragraph 22 of the Consent Decree to detect and report any surface water contamination that potentially could result (although unlikely) from closure activities.

Groundwater monitoring is not included in this Plan. The nature of and schedule for the Closure Cell groundwater monitoring program are described in Appendix I of Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II (revised May 8, 1985).

No provisions for air monitoring are provided in this Plan because no PCB-contaminated materials are being fixed in Ponds 11 and 12 and because monitoring of chemical fixation activities in Ponds 4, 5, and 7 showed no detectable concentrations of PCBs in the air.

Quality Control and Inspection

CWM will assign a full-time inspector to implement the quality control and inspection program outlined in Table 1. This is the same program approved and implemented for the closure of Ponds 4, 5, and 7. The inspector will keep a daily log of determinations and observations made and of actions taken to correct deficiencies.

The inspector will determine the amounts of reagents to be used in fixing a batch or an area of sludge and will monitor the application of reagents to ensure compliance with these determinations. The inspector also will determine whether a batch or area of sludge has been adequately fixed.

The inspector will monitor the application of reagent onto batches or areas of sludge being fixed to ensure that adequate procedures are being followed to minimize the generation of dust. CWM will attempt to achieve the condition of no visible airborne dust outside of the Operating Zone.

As was practiced in the closure of Ponds 4, 5, and 7, the Project Manager will have the responsibility and authority to select the optimal procedures (e.g., cessation of operations when high ambient temperatures or excessive wind conditions occur). The inspector will have the authority to direct compliance to those procedures selected.

The inspector will monitor the proper placement of contaminated materials in the Closure Cell.

TABLE 1
INSPECTION AND QUALITY CONTROL PROGRAM

Item	Interval
Determination of the amounts of reagents to employ in the fixation of sludge to comply with the approved formula	Each batch or area of sludge to be fixed
Monitoring of compliance with the above determination	During each application of reagents
Determination of adequate fixation sludge	Each batch or area of sludge fixed
Surveillance of the placement of materials in the Closure Cell	Continuously during operating hours during Steps 6 and 7
Surveillance of the depth of removal of contaminated soils from the ponds	After soils are removed from each pond
Monitoring of compliance with the design specifications and quality control procedures for installation of the final cover on the Closure Cell	Continuously during operating hours during Step 8
Surveillance of dust generating activities	Continuously during operating hours
Surveillance of odor generating activities	Continuously during operating hours of Steps 3 and 5
Timely removal of run-off from the pond areas	Daily during Steps 3, 5, 6, and 7
Surveillance of regrading of pond areas with clean soil	Daily during Step 9

The inspector will monitor the removal of soil from the bottom and sides of Ponds 11 and 12 to ensure that all contaminated soils are removed. He/she will follow the procedures specified in the Soil Sampling Plan included in Appendix VII to ensure that all such soils are removed.

The inspector will monitor the timely removal of collected run-off from the Operating Zone during Steps 3, 5, 6, and 7 and ensure that all waters are removed for on-site deepwell disposal.

The inspector will monitor the placement and compaction of earth backfill in Ponds 11 and 12 to verify compliance with the criteria presented in Appendix V. All soil testing required by these criteria will be performed by CWM's geotechnical consultant.

POST-CLOSURE CARE AND MONITORING PLAN

Post-closure care and monitoring of the regraded pond areas will not be conducted because all contaminated materials will have been removed. A discussion of post-closure and monitoring of the Closure Cell is provided in Phase II of the Closure Plan for Ponds 4, 5, and 7, Volume II (revised May 8, 1985) and Appendix I.

FEDERAL AND STATE PERMITS

CWM believes that approval of this Closure Plan is not required by USEPA.

CWM further believes that approval of this Closure Plan by OEPA under terms of the Consent Decree and in accordance with the Ohio Administrative Code will satisfy all state environmental requirements and that no other state permits or approvals are required for closure of Ponds 11 and 12.

CWM knows of no local permits or approvals necessary for this Closure Plan.

COMPLIANCE WITH REQUIREMENTS
OF OHIO ADMINISTRATIVE CODE

As required by Paragraph 25 of the Consent Decree, the Closure Plan described in this document has been designed to comply with the requirements of the following rules of the Ohio Administrative Code: 3745-66-10 through 3745-66-20 and 3745-67-28. This section describes how the Plan achieves compliance with these rules.

Closure and Post-Closure Applicability--3745-66-10

As required by the rule, CWM recognizes that Rules 3745-66-11 through 3745-66-20 apply to the closure of Ponds 11 and 12, except where specifically noted below.

Closure Performance Standard--3745-66-11

CWM believes that Rule 3745-66-11 does not apply to the regraded Pond 11 and 12 area because all waste materials and contaminated soils will have been removed to a separately permitted facility: the Closure Cell.

Closure Plan--3745-66-12

This document constitutes the Closure Plan for Ponds 11 and 12. A copy of this document and any amendments thereof will be kept at the Vickery Facility until closure is completed and certified in accordance with Rule 3745-66-15.

The steps that will be followed in closing Ponds 11 and 12 are delineated in this Closure Plan, including the schedule

for completion of the closure activities. Closure of Ponds 11 and 12 will constitute only partial closure of the Vickery Facility. Closed tanks devoted to the storage and treatment of wastes and the existing deepwells will continue to operate during and after closure of Ponds 11 and 12.

This Closure Plan provides for compliance with the following rules:

- 3745-66-11: See above
- 3745-66-13: See below
- 3745-66-15: See below
- 3745-66-97: Not applicable; applies only to tanks that store or treat hazardous wastes
- 3745-67-28: This Closure Plan provides for the removal of all standing liquids, wastes, waste residues, and contaminated materials from Ponds 11 and 12.
- 3745-67-80: Not applicable; applies only to land treatment facilities
- 3745-68-10: Not applicable; applies only to land disposal facilities
- 3745-68-51: Not applicable; applies only to incinerators
- 3745-68-81: Not applicable; applies only to thermal treatment facilities
- 3745-69-04: Not applicable; applies only to chemical, physical, or biological treatment facilities

As indicated above, a possible schedule for completing the closure of Ponds 11 and 12 is provided in Figure 1 of this document. This schedule shows that if approval of this Plan is given by OEPA and USEPA by December 15, 1985, closure of Ponds 11 and 12 can be completed by the end of 1986. If delayed

approval is given, completion of closure of these ponds will be extended through late 1987.

Time Allowed for Closure--3745-66-13

Closure of the ponds will not be completed within 180 days after commencement of closure activities as required by Rule 3745-66-13. The reasons are the reasonable time periods required to deplete the ponded liquid waste inventory, fix and remove materials from the ponds, place the removed materials in the Closure Cell, place a final cover on the Closure Cell, and regrade the pond closure areas, all of which are in accordance with applicable regulations, requirements of the Consent Decree, and comments and guidance received from USEPA and OEPA. CWM believes that these reasons are sufficient to justify the longer times than contemplated in Rule 3745-66-13 and further believes that the longer times can be allowed because the Closure Plan includes procedures to prevent threats to human health and the environment during its implementation. Therefore, CWM requests a waiver from the 180-day time period contemplated by Rule 3745-66-13.

Disposal or Decontamination of Equipment--3745-66-14

As described in this Closure Plan, all equipment that enters the Operating Zone during Steps 3, 5, 6, and 7 (when contaminated materials are being handled) will be decontaminated before such equipment leaves the zone or at the end of that step.

Certification of Closure--3745-66-15

As indicated under Step 10 of this Plan, when closure is completed CWM will submit certifications by the inspector and by an independent registered engineer reflecting compliance with this Closure Plan.

Post-Closure Care and Use of Property--3745-66-17

CWM believes that Rule 3745-66-17 does not apply to this Closure Plan since all waste materials will have been removed from the pond closure areas.

Post-Closure Plan--3745-66-18

CWM believes that Rule 3745-66-18 does not apply to this Closure Plan since all waste materials will have been removed from the pond closure areas.

Notice to Local Authority--3745-66-19

CWM believes that Rule 3745-66-19 does not apply to this Closure Plan since all waste materials will have been removed from the pond closure areas.

Notice in Deed to Property--3745-66-20

When the Vickery Facility is fully closed, CWM will record a notice in the deed to the property to fulfill the requirements of Rule 3745-66-20.

Closure and Post-Closure--3745-67-28

As indicated above, this Closure Plan provides for the removal of all standing liquids, waste, waste residuals, and contaminated materials from Ponds 11 and 12, therefore meeting this requirement.

APPENDIX VI
PERSONNEL HEALTH AND SAFETY PLAN

PERSONNEL HEALTH AND SAFETY PLAN

This document describes the personnel health and safety procedures that will be followed during Steps 3, 5, 6, and 7 of the Closure Plan for Ponds 11 and 12.

Personnel Protective Equipment

All personnel who enter the Operating Zone must wear the following protective equipment:

- Hard hats
- Safety shoes
- Boots over safety shoes
- PVC gloves (disposable)
- TYVEK-Saranex coveralls (disposable)
- OV/AG respirators and disposable cartridges with dust/mist prefilters

In addition, persons who may be in direct contact with the sludge (fixed or unfixed) must wear viton gloves under their PVC gloves. Also, these persons must wear an air-supplied full-face respirator in lieu of the disposable respirator listed above.

All disposal equipment (PVC gloves, TYVEK-Saranex coveralls, and respirator cartridges) will be disposed of after use. These articles will be stored in a steel drum(s) and periodically emptied into the Closure Cell for permanent disposal. All other equipment will be washed with soap and water after use.

Wastewater will be conveyed to the Waste Treatment System for subsequent deepwell disposal.

Coveralls and gloves that are torn during work must be replaced.

Personnel Decontamination Procedures

Before entering the Operating Zone, personnel who will work in this zone for more than six hours will be required to change into work clothes and put on the protective equipment delineated above. Other persons who enter the Operating Zone will be required to put on only the protective equipment listed above.

Before leaving the Operating Zone, all persons who have worked in the Operating Zone for more than six hours will have to remove all protective equipment and work clothing and shower before changing into street clothes. Disposable equipment will be discarded. Other equipment and clothing will be washed or laundered for reuse. Other persons leaving the Operating Zone will be required first to remove protective equipment and wash their hands and face, unless their protective equipment has become grossly contaminated, in which case they will be required to shower.

The decontamination trailer(s) will house clean and dirty locker rooms, a shower and wash room, and a laundry room to facilitate the above procedures. Another trailer in the Operating Zone will house the lunch room.

Before entering the lunch/restroom, personnel will have to remove all protective clothing and wash their hands and face. A wash area will be established outside of the decontamination trailer(s) (inside the Operating Zone) for removing mud and dirt from protective clothing. Trisodium phosphate solution and water rinse will be used for this purpose.

Maintenance of Decontamination Trailer and Lunch Room

The decontamination and lunch room trailers will be kept clean and orderly by a janitorial service or assigned CWM employees.

Medical Examinations

Each person who will work in the Operating Zone for more than 30 days will be required to have a physician certify in writing that the person is medically qualified to work with hazardous wastes. Certifications must be based on physical examinations performed no more than 9 months prior to initial entry into the Operating Zone.

Each person who has worked more than 30 days in the Operating Zone will be examined by a physician no more than 3 weeks after the last day of work in the Operating Zone.

Occupational Air Monitoring

During Steps 3, 5, 6, and 7, 20 percent of the employees within the Operating Zone will be selected to wear an air monitoring device. These devices will be calibrated daily or before each use. Samples will be taken over periods of 7 hours or longer and will be analyzed for volatile organics. Results

will be calculated as 8-hour, time-weighted averages. Collected data and analytical records will be kept.

Control of Heat-Related Illness

Persons required to wear TYVEK-Saranex coveralls and who do not work in an air-conditioned environment (e.g., the air conditioned cab of a piece of heavy equipment) will be allowed the following rest periods when wet bulb globe temperatures fall within the indicated ranges:

75-80°F	15 minutes each hour
80-85°F	30 minutes each hour
85-90°F	45 minutes each hour
over 90°F	no work

When the wet bulb globe temperature exceeds 75°F, the heart rate of each person who is working in the Operating Zone will be taken when that person leaves the zone. If the heart rate of a person exceeds 90 plus his/her age in years or 160 beats per minute, steps will be taken to watch for and avoid heat-related illness. All persons working in the Operating Zone will be trained to recognize the signs and symptoms of heat-related illness and in methods of preventing and providing first aid for such illness.

Electrolyte balance thirst quencher (e.g., Gatorade) will be made available to personnel, and its use will be encouraged.

Control of Cold Stress

When ambient temperatures fall below 30°F, personnel will be required to wear appropriate warm clothing and, if they

are not operating heavy equipment equipped with a heater, will be allowed to come indoors periodically to avoid prolonged exposure to cold temperatures or wind chill.

First Aid and Emergency Equipment

The following equipment will be stored in the decontamination trailer(s) and will be readily accessible for emergency use:

- Four 10-pound ABC fire extinguishers
- One fire blanket
- One 36-unit industrial first aid kit
- One stretcher
- Three full-face respirators and SCBA air supply units
- Three sets of boots, gloves, hard hat, and coveralls

A portable shower and eyewash will be located in the Operating Zone as near to the focus of sludge fixation activity as possible.

Each piece of heavy equipment will be equipped with a 20-pound ABC fire extinguisher. Also, a 100-pound ABC fire extinguisher will be located near the working area.

Communications and Alarms

Hand-held portable radios will be provided to the following persons:

- Health and Safety Officer
- Inspector
- Foreman
- Others as necessary

A telephone will be located in the office trailer. Emergency numbers (fire department, rescue squad, hospital) will be posted.

An alarm that will produce at least 110 db at one meter will be located at the decontamination trailer(s) to warn personnel in the Operating Zone of any emergency situation. Also, each piece of heavy equipment will have an alarm..

Other Health and Safety Procedures

Persons who work in the Operating Zone will not be permitted to wear a beard or to smoke, drink, or eat within the zone.

Appropriate signs will be posted to: (a) identify the location of safety and emergency equipment, (b) warn against prohibited acts such as smoking, (c) warn of requirements such as passing through decontamination procedures before entering or leaving the Operating Zone, (d) designate use of gates, and (e) direct vehicle and equipment traffic and unloading activities.

Personnel Training

All personnel will be given the following orientation training before they start working:

- Purpose of the project and explanation, in general terms, of how it will be accomplished.
- Right to Know indoctrination which briefly explains, in layman's terms, the potential health hazards associated with the project. This indoctrination must include explanations of exposure routes; symptoms of exposure; basic first aid treatment of exposure; spill, leak, and containment procedures; protective clothing and equipment required in the Operating Zone; and basic

personal hygiene requirements. Current Material Safety Data Sheets (MSDS's) must be used to prepare for this indoctrination.

- Description of the layout of the facility and the closure operating areas with special emphasis on routes of entry and exit.
- Familiarization with the operations alarm system, communication system, evacuation procedures, and emergency equipment.

At least two (2) people will be trained and have valid certificates in basic first aid and CPR from a reputable organization such as the American Red Cross.

All personnel will be trained in how to use portable ABC-type fire extinguishers properly.

All personnel required by this plan to wear respirators will be trained in the care, donning, removal, and limitations of Organic Vapor/Acid Gas full-face, cartridge respirators. This training will include fit testing of the users. Additionally, those personnel required to use air-supplied full-face respirators will be trained in the care, use, limitations, and fitting of these respirators. This respiratory protection training will follow the training plan in the booklet entitled "Respiratory Protection," U.S. Department of Labor, Occupational Safety and Health Administration, 1984, OSHA 3079, and the respirator manufacturers' use instructions.

A person trained by the respirator manufacturers will manage the inspection, maintenance, and cleaning of the respirators.

All persons required by this plan to wear protective equipment will be trained in the care, donning, removal, and limitations

of hard hats, TYVEK-Saranex coveralls, PVC gloves, viton gloves, safety shoes, and boots over safety shoes. This training will include taping the cuffs and zipper of the coveralls to enhance protection from exposure.

All persons required to wear protective clothing and respiratory equipment will be trained in the signs, symptoms, and first aid treatment for heat stroke, heat cramps, and heat exhaustion. They will also be trained in methods to prevent those conditions, such as fluid replacement and work-rest cycles. This training shall be based upon the information in the booklet entitled "Hot Environments," U.S. Department of Labor, Occupational Safety and Health Administration, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, 1980.

All personnel who will work in the Operating Zone will be indoctrinated in how to enter and exit the zone through the decontamination trailer(s). They will also will be trained in how to remove, store, or dispose of their protective clothing/equipment and shower before entering the clean locker room. Finally, they will be indoctrinated in the personal hygiene requirements of washing their hands and faces before eating, drinking, or smoking and in the prohibitions against the use of food, drinks, and tobacco products in the Operating Zone.

Personnel assigned to work the Operating Zone during Steps 3, 5, 6, and 7 will be trained in the following:

- Use of respiratory and personal protective equipment.
- The care, use, and limitations of rescue equipment such as a safety harness and tie line.
- The communication system and equipment so that emergencies can be reported quickly.
- First aid and CPR should be necessary.
- Their role during fire, spill or other emergencies (supervisory personnel only).
- Safe operation of heavy equipment (operators only).

Contingency Plan

The current RCRA Contingency Plan for the Vickery Facility will be followed to respond to any emergencies.

Records

The following records will be maintained:

- A log of daily instrument calibrations
- A log of personal exposure measurements
- A log of monthly inspections of emergency equipment (fire extinguishers, SCBA's, life lines, escape respirators, alarms, etc.)
- An inventory of disposable personal protective equipment
- Measurements made with OVA's
- Medical examinations
- A log of entries and exits to and from the Closure Area and the Operating Zone
- Daily walk-through inspection record

Supervision of Plan

The Health and Safety Officer will supervise and monitor the implementation of this plan and will direct all responses to emergency situations.

SOIL SAMPLING PLAN

In accordance with 40 CFR 265.228, all waste residues plus at least 6 inches of clay soil from the interior surfaces of Ponds 11 and 12 will be removed and disposed of in the Closure Cell to be constructed pursuant to the closure of Ponds 4, 5, and 7 until no visual evidence or discoloration of soils remain. To confirm the removal of waste residue, soil sampling and analysis will be conducted.

Each pond will be sampled by collecting representative soil samples similar to the 1983 sampling plan accepted by USEPA and Ohio EPA during the initial site characterization activities at Vickery. This plan was described in the "Phase Va: Open Lagoons" summary report prepared by Environmental Testing and Certification Corporation (ETC).

Once each pond has been prepared for sampling, a grid will be established dividing the lagoon into a matrix, each grid approximately a 200' x 200' area. One soil sample will be obtained from the top 6 inches of soil from the approximate center of each grid. A soil sample from the corresponding dike location will also be obtained.

The total number of samples from each pond would include:

- Pond 11 - 8 soil samples from the floor
 - 12 soil samples from the side dikes, with two each from the North and South dikes and four each from the East and West dikes
- Pond 12 - 12 soil samples from the floor
 - 14 soil samples from the side dikes, with four each from the East and West dikes and three each from the North and South dikes

CWM will select the actual sample location in the field. Ohio EPA will be notified prior to sample collection to insure their input as to the actual location.

The samples will be collected by use of a shelby tube pushed into the soil. All sampling devices will be washed with soap and water and rinsed with acetone and distilled water prior to use. Dedicated sampling devices will be used. Should shelby tubes be unusable for this application, a stainless steel shovel or trowel will be used after proper cleaning.

If the sample is obtained for use by a shelby tube, care will be taken to obtain the sample for analysis from its center and not any area which was in direct contact with the sampling device. No ends or outer shell of the soil sample will be used.

Should Ohio EPA wish to obtain splits of the samples, they will be provided from the same sample CWM will use for analysis. CWM proposes to analyze these samples for each constituent identified from the waste characterization of the aqueous fluid in Ponds 11 and 12, currently being performed by ETC pursuant to Paragraph H of the Consent Agreement and Final Order. Since this analysis is not complete, a listing of analytical constituents cannot be proposed at this time.

Once this information is available, this plan will be modified to include a recommended constituent list.